Sintec Optronics

SHC Series Servo Motors and Drivers

We are a leading global provider of industrial automation solutions to OEMs and end users with servo motors & drivers, frequency inverters, PLCs and motion controllers. The company's flexible production techniques and expert understanding of all industry sectors – from plastics to printing to packaging to iron & steel production – have allowed it to establish globally leading industry-specific business units. Over the years, we have built an engineering team with specialist expertise in industrial automation. Their combined knowledge makes the company one of the world's foremost industrial automation partners, and enables it to form long-term relationships with customers. This means that we can provide ongoing advice about how to get the most out of their automation solutions today, and how to stay prepared for the market and technology changes that are coming in future.

Driven by Technology

AC Drives

AC MultiDrives

MV Drives

Single-Axis Servos

Multi-Axes Servos

Robotics & Motion Controllers

PLCs & HMIs

CNC Machine Tool Solutions

Electric Vehicle Inverters

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1. Servo Motors

1.1 MS1 series servo motors

The highly dynamic MS1 servo motor range has a wide variety of power ratings, as well as flange and brake options. The motor family benefits from a small footprint that reduces overall machine size.

MS1H1/H4 series

- From 0.16 to 3.2 Nm
- Easy motor and encoder connections
- 23 bit motor encoder feedback: +/-15 arcseconds
- Up to 350% maximum peak torque
- Torque fluctuation <0.5%
- IP67 rating
- Complies with CE and UL

MS1H2/H3 series

- From 3.2 to 47 Nm
- 23 bit motor encoder feedback: +/-15 arcseconds
- Up to 300% maximum peak torque
- Torque fluctuation <1%
- IP67 rating
- Complies with CE and UL

Voltage	220V					400V			
Frame	40 x 40	60 x 60	80 x 80	100 x 100	130 x 130	100 x 100	130 x 130	130 x 130	180 x 180
Appearance									
Type Codes	MS1H1-05B30CB-A3XXZ MS1H1-10B30CB-A3XXZ	MS1H1-20B30CB-A3XXZ MS1H1-40B30CB-A3XXZ MS1H4-40B30CB-A3XXZ	MS1H1-55B30CB-A3XXZ MS1H1-75B30CB-A3XXZ MS1H4-75B30CB-A3XXZ MS1H1-10C30CB-A3XXZ	MS1H2-10C30CB-A3XXZ MS1H2-15C30CB-A3XXZ	MS1H3-85B15CB-A3XXZ MS1H3-13C15CB-A3XXZ	MS1H2-10C30CD-A3XXZ MS1H2-15C30CD-A3XXZ MS1H2-20C30CD-A3XXZ MS1H2-25C30CD-A3XXZ	MS1H2-30C30CD-A3XXZ MS1H2-40C30CD-A3XXZ MS1H2-50C30CD-A3XXZ	MS1H3-85B15CD-A3XXZ MS1H3-13C15CD-A3XXZ MS1H3-18C15CD-A3XXZ	MS1H3-29C15CD-A3XXZ MS1H3-44C15CD-A3XXZ MS1H3-55C15CD-A3XXZ MS1H3-75C15CD-A3XXZ
Rated Speed (rpm)	3000	3000	3000	3000	1500	3000	3000	1500	1500
Rated Power (W)	50 - 100	200 - 400	550 - 1000	1000 - 1500	850 - 1300	1000 - 2500	3000 - 5000	850 - 1800	2900 - 7500
Rated Torque (N-m)	0.16 - 0.32	0.64 - 1.27	1.75 - 3.18	3.18 - 4.90	5.39 - 8.34	3.18 - 7.96	9.8 - 15.8	5.39 - 11.5	18.6 - 48.0
Applicable Drives	IS810, SV660, SV670, SV680								

Product ordering code

MS1 H1 - 75B 30C B - A3 3 1 Z - INT

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

(1) Series: MS1 series servo motor

(2) Inertia
H1: low inertia, 40/60/80 mm flange, 3,000 RPM
H2: low inertia, 100/130 mm flange, 3,000 RPM
H3: medium inertia 130/180 mm flange, 1,500 RPM
H4: medium inertia 60/80 mm flange, 3,000 RPM

(3) Rated power
A: x 1
B: x 10
C: x 100
D: x 1,000
E: x 10,000
E.g. 75B: 750 W: 15C: 1,500 W

(4) Rated speed
A: x 1
B: x 10
C: x 100
D: x 1,000
E: x 10,000
E.g. 30C : 3,000 RPM

(5) Voltage class
B: 220 V
D: 400 V

(6) Encoder type
A3: 23-bit single & multi-turn absolute
A6: 26-bit

(7) Motor shaft
1: plain
2: keyed
3: keyed + tapped hole
5: tapped hole

(8) Brake and oil seal options
0: no brake, no oil seal
1: oil seal
2: brake
4: brake + oil seal

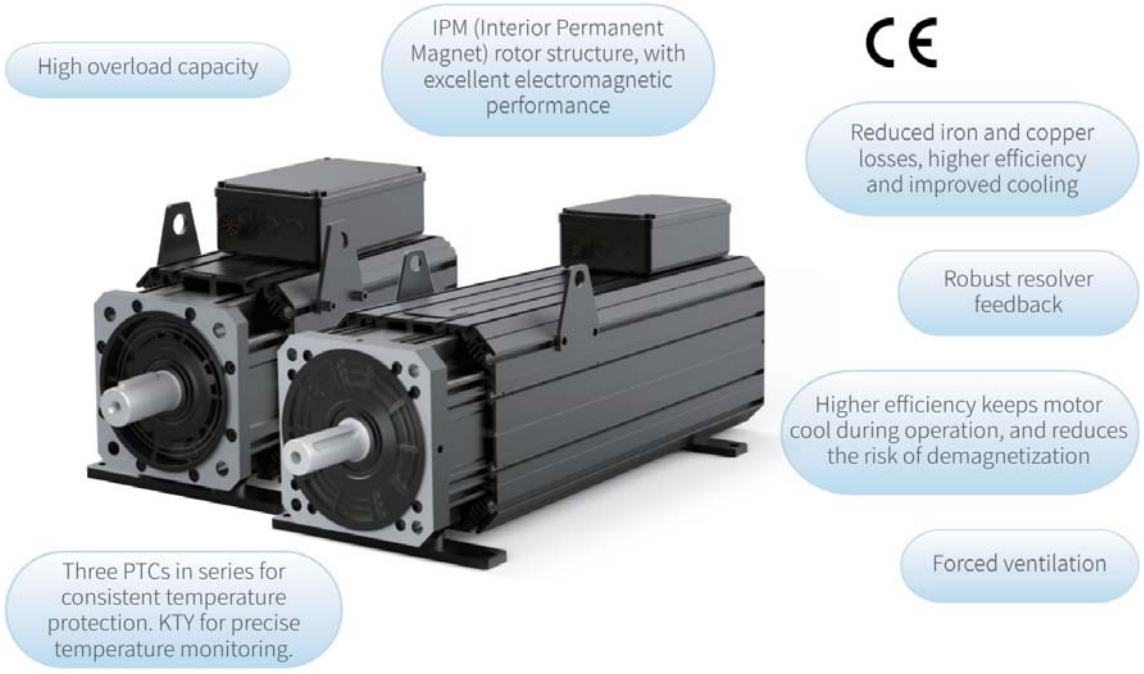
(9) Stator pole:
Y: 8 pole
Z: 10 pole

(10) INT: international version

Servo motor model	Rated output [kW]	Rated torque [Nm]	Peak torque [Nm]	Rated current [Arms]	Peak current [Arms]	Rated speed [RPM]	Max speed [RPM]	Torque constant [Nm/Arms]	Rotor inertia [10-4 x kg·m2]		Voltage [V]
									Without brake	With brake	
MS1H1 (Nrated = 3,000 RPM, Nmax = 6,000 RPM)											
MS1H1-05B30CB-XXXXZ-INT	0.05	0.16	0.56	1.3	4.7	3,000	6,000	0.15	0.026	0.028	220
MS1H1-10B30CB-XXXXZ-INT	0.1	0.32	1.12	1.3	4.7			0.26	0.041	0.043	
MS1H1-20B30CB-XXXXZ-INT	0.2	0.64	2.24	1.5	5.8			0.46	0.207	0.220	
MS1H1-40B30CB-XXXXZ-INT	0.4	1.27	4.46	2.8	10.1			0.53	0.376	0.390	
MS1H1-55B30CB-XXXXZ-INT	0.55	1.75	6.13	3.8	15.0			0.49	1.06	1.06	
MS1H1-75B30CB-XXXXZ-INT	0.75	2.39	8.36	4.8	16.9			0.58	1.38	1.43	
MS1H1-10C30CB-XXXXZ-INT	1.0	3.18	11.1	7.6	28			0.46	1.75	1.75	
MS1H2 (Nrated = 3,000 RPM, Nmax = 5,000/6,000 RPM)											
MS1H2-10C30CB-XXXXZ-INT	1.0	3.18	9.54	7.5	23	3,000	6,000	0.43	1.87	3.12	220
MS1H2-15C30CB-XXXXZ-INT	1.5	4.9	14.7	10.8	32		5,000	0.45	2.46	3.71	
MS1H2-10C30CD-XXXXZ-INT	1.0	3.18	9.54	3.65	11		6,000	0.87	1.87	3.12	400
MS1H2-15C30CD-XXXXZ-INT	1.5	4.9	14.7	4.5	14		5,000	1.09	2.46	3.71	
MS1H2-20C30CD-XXXXZ(-S4)-INT	2.0	6.36	19.1	5.89	20			1.08	3.06	4.31	
MS1H2-25C30CD-XXXXZ(-S4)-INT	2.5	7.96	23.9	7.56	25			1.05	3.65	4.9	
MS1H2-30C30CD-XXXXZ(-S4)-INT	3.0	9.8	29.4	10	30			0.98	7.72	7.72	
MS1H2-40C30CD-XXXXZ(-S4)-INT	4.0	12.6	37.8	13.6	40.8			0.93	12.1	14.6	
MS1H2-50C30CD-XXXXZ(-S4)-INT	5.0	15.8	47.6	16	48			1.07	15.4	17.9	
MS1H3 (Nrated = 1,500 RPM, Nmax = 3,000 RPM)											
MS1H3-85B15CB-XXXXZ-INT	0.85	5.39	13.5	6.6	16.5	1,500	3,000	0.9	13.3	14	220
MS1H3-13C15CB-XXXXZ-INT	1.3	8.34	20.85	10	25			0.9	17.8	18.5	
MS1H3-85B15CD-XXXXZ-INT	0.85	5.39	13.5	3.3	8.25			1.75	13.3	14	400
MS1H3-13C15CD-XXXXZ-INT	1.3	8.34	20.85	5	12.5			1.78	17.8	18.5	
MS1H3-18C15CD-XXXXZ-INT	1.8	11.5	28.75	6.6	16.5			1.8	25	25.7	
MS1H3-29C15CD-XXXXZ-INT	2.9	18.6	37.2	11.9	28			1.7	55	57.2	
MS1H3-44C15CD-XXXXZ-INT	4.4	28.4	71.1	16.5	40.5			1.93	88.9	90.8	
MS1H3-55C15CD-XXXXZ-INT	5.5	35	87.6	20.85	52			1.8	107	109.5	
MS1H3-75C15CD-XXXXZ-INT	7.5	48	119	25.7	65			1.92	141	143.1	
MS1H4 (Nrated = 3,000 RPM, Nmax = 6,000 RPM)											
MS1H4-40B30CB-XXXXZ-INT	0.4	1.27	4.46	2.8	10.1	3,000	6,000	0.53	0.657	0.667	220
MS1H4-75B30CB-XXXXZ-INT	0.75	2.39	8.36	4.8	16.9			0.58	2	2.012	

1.2 ISMG series servo motors

Servo motor designed for energy saving servo pump applications



- High overload capacity
- Excellent electromagnetic performance with interior permanent magnet rotor structure
- Higher efficiency and improved cooling with reduced iron and copper losses
- Robust resolver feedback
- Higher efficiency keeps motor cool during operation, and reduces the risk of demagnetization
- Forced ventilation
- Consistent temperature protection with three PTCs in series
- Precise temperature monitoring with KTY

ISM G1 - 95C 15C D - R1 A 1 F A

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① **Product series:**
ISM: ISM series servo motor

② **Flange size (mm):**
G1: 200 x 200
G2: 266 x 266

③ **Rated Power (W)**
C: x 100
D: x 1000

④ **Rated speed (rpm)**
C: x 100
D: x 1000

⑤ **Voltage class**
B: 220 V
D: 380 V

⑥ **Encoder type**
A3: 23-bit absolute
R1: Resolver

⑦ **Shaft connection**
3: Keyed + tapped hole
A: Keyed + tapped hole
IPM rotor structure

⑧ **Brake, gear, oil seal**
1: Oil seal
4: Oil seal + brake

⑨ **Customised feature**
F: Forced ventilation

⑩ **Version**
A: Version A

Series		ISMG1														
Model	ISMG1-xxxxxxx-yyyyFA	95C15CD	11D17CD	12D20CD	14D15CD	16D17CD	18D20CD	17D15CD	20D17CD	23D20CD	22D15CD	24D17CD	28D20CD	30D15CD	34D17CD	41D20CD
Frame size [mm]		200 x 200														
Length [mm]		375			410			445			480			550		
Rated voltage [V]		380														
Rated frequency [Hz]		100	113.33	133.33	100	113.33	133.33	100	113.33	133.33	100	113.33	133.33	100	113.33	133.33
Rated speed [RPM]		1,500	1,700	2,000	1,500	1,700	2,000	1,500	1,700	2,000	1,500	1,700	2,000	1,500	1,700	2,000
Back EMF [V]		318.2	309.1	303	303	309.1	323.2	303	300.5	303	318.2	309.1	303	303	309.1	323.2
Rated power [kW]	S1	7.9	8.9	10.5	11.8	13.4	15.7	14.5	16.4	19.3	18.1	20.5	24.1	23.6	26.7	31.4
	S4	9.5	11	12	14	16	18	17	20	23	22	24	28	30	34	41
Rated current [A]	S1	15.4	18.1	21.6	24.4	27.1	30.4	29.9	34.1	39.8	35.5	41.5	49.8	48.7	54.2	60.7
	S4	18.5	21.7	26	29.2	32.5	36.4	35.7	40.7	47.6	41.7	48.7	58.4	63.3	70.4	78.9
Rated torque [Nm]	S1	50			75			92			115			150		
	S4	60			90			110			135			195		
Peak torque [Nm]		130			180			230			280			380		
Inertia [10^{-3}kg·m²]		7.5			9			10.5			12			15		
Mass [kg]		45.2			51.9			59			66			79.8		
Poles		8														

Series		ISMG2														
Model	ISMG2-xxxxxxx-yyyyFA	31D15CD	36D17CD	42D20CD	42D15CD	48D17CD	57D20CD	52D15CD	60D17CD	70D20CD	60D15CD	68D17CD	80D20CD	80D15CD	91D17CD	11E20CD
Frame size [mm]		266 x 266														
Length [mm]		525			575			625			675			775		
Rated voltage [V]		380														
Rated frequency [Hz]		100	113.33	133.33	100	113.33	133.33	100	113.33	133.33	100	113.33	133.33	100	113.33	133.33
Rated speed [RPM]		1,500	1,700	2,000	1,500	1,700	2,000	1,500	1,700	2,000	1,500	1,700	2,000	1,500	1,700	2,000
Back EMF [V]		318.2	309.1	303	303	309.1	323.2	303	300.5	303	318.2	309.1	303	303	343.4	323.2
Rated power [kW]	S1	26.7	30.3	35.6	36.1	40.9	48.2	44.8	50.7	59.7	53.4	60.5	71.2	69.1	78.3	92.1
	S4	31	36	42	42	48	57	52	60	70	60	68	80	80	91	110
Rated current [A]	S1	52.5	61.4	73.6	74.7	83	93.1	94.1	107.5	125.6	104.9	122.7	147.2	142.9	142.9	178.1
	S4	61.7	72.2	86.6	87.7	97.5	109.3	110.6	126.4	147.6	118.8	139	166.7	165.6	165.6	206.5
Rated torque [Nm]	S1	170			230			285			340			440		
	S4	200			270			335			385			510		
Peak torque [Nm]		330			440			550			660			825		
Inertia [10^{-3}kg·m^2]		29.6			36.8			43.4			50			64		
Mass [kg]		122			141.3			158.4			175.4			217		
Poles																

2. Servo Drivers

2.1 SV660N servo drivers

High dynamic performance with a compact footprint: the SV660N servo solution for industrial automation applications

- User friendly installation
- Easy set-up and tuning
- Ultra-fast 4.5kHz current loop
- Speed loop bandwidth up to 3kHz
- Supply voltage: Single phase 220V; Three phase 220V; Three phase 380V
- 0.1-7.5kW
- Safe Torque Off - SIL3
- Complies with CE and UL

Power supply voltage	Motor base speed (RPM)	Motor maximum speed (RPM)	Motor power (W)	Motor rated torque (N·m)	Motor peak torque (N·m)	Motor frame size (mm)	Rotor inertia (0.0001x kg·m2)	MS1 motor type	SV660N type	SV660N rated current (A)	SV660N peak current (A)	Size	Dimensions H x W x D (mm)	Connector kit
1PH 220 V	3000	6000	50	0.16	0.56	40X40	0.026	MS1H1-05B30CB-A330Z	SV660NS1R6I-FS-INT	1.6	5.80	A	170X40X150	S6-C22
	3000	6000	100	0.32	1.12	40X40	0.041	MS1H1-10B30CB-A330Z	SV660NS1R6I-FS-INT	1.6	5.80	A	170X40X150	S6-C22
	3000	6000	200	0.64	2.24	60X60	0.207	MS1H1-20B30CB-A331Z	SV660NS1R6I-FS-INT	1.6	5.80	A	170X40X150	S6-C22
	3000	6000	400	1.27	4.46	60X60	0.376	MS1H1-40B30CB-A331Z	SV660NS2R8I-FS-INT	2.8	10.10	A	170X40X150	S6-C22
	3000	6000	400	1.27	4.46	60X60	0.657	MS1H4-40B30CB-A331Z	SV660NS2R8I-FS-INT	2.8	10.10	A	170X40X150	S6-C22
	3000	6000	550	1.75	6.13	80X80	1.06	MS1H1-55B30CB-A331Z*	SV660NS5R5I-FS-INT	5.5	16.90	B	170X50X173	S6-C22
	3000	6000	750	2.39	8.36	80X80	1.38	MS1H1-75B30CB-A331Z	SV660NS5R5I-FS-INT	5.5	16.90	B	170X50X173	S6-C22
	3000	6000	750	2.39	8.36	80X80	2	MS1H4-75B30CB-A331Z	SV660NS5R5I-FS-INT	5.5	16.90	B	170X50X173	S6-C22
1/3 PH 220 V	1500	3000	850	5.39	13.50	130X130	13.3	MS1H3-85B15CB-A331Z	SV660NS7R6I-FS-INT	7.6	23.00	C	170X55X173	S6-C29
	3000	6000	1000	3.18	9.12	80X80	1.75	MS1H1-10C30CB-A331Z*	SV660NS7R6I-FS-INT	7.6	23.00	C	170X55X173	S6-C22
	3000	6000	1000	3.18	11.10	80X80	1.75	MS1H1-10C30CB-A331Z*	SV660NS012I-FS-INT	11.6	32.00	D	170X80X183	S6-C22
	3000	6000	1000	3.18	9.54	100X100	1.87	MS1H2-10C30CB-A331Z	SV660NS7R6I-FS-INT	7.6	23.00	C	170X55X173	S6-C29
	1500	3000	1300	8.34	20.85	130X130	17.8	MS1H3-13C15CB-A331Z	SV660NS012I-FS-INT	11.6	32.00	D	170X80X183	S6-C29
	3000	5000	1500	4.9	14.70	100X100	2.46	MS1H2-15C30CB-A331Z	SV660NS012I-FS-INT	11.6	32.00	D	170X80X183	S6-C29
3 PH 400 V	3000	6000	1000	3.18	9.54	100X100	1.87	MS1H2-10C30CD-A331Z	SV660NT5R4I-FS-INT	5.4	14.00	C	170X55X173	S6-C29
	3000	5000	1500	4.9	14.70	100X100	2.46	MS1H2-15C30CD-A331Z	SV660NT5R4I-FS-INT	5.4	14.00	C	170X55X173	S6-C29
	3000	5000	2000	6.36	19.10	100X100	3.06	MS1H2-20C30CD-A331Z	SV660NT8R4I-FS-INT	8.4	20.00	D	170X80X183	S6-C29
	3000	5000	2500	7.96	19.12	100X100	3.65	MS1H2-25C30CD-A331Z	SV660NT8R4I-FS-INT	8.4	20.00	D	170X80X183	S6-C29
	3000	5000	2500	7.96	23.90	100X100	3.65	MS1H2-25C30CD-A331Z	SV660NT012I-FS-INT	11.9	29.75	D	170X80X183	S6-C29
	3000	5000	3000	9.8	29.16	130X130	7.72	MS1H2-30C30CD-A331Z	SV660NT012I-FS-INT	11.9	29.75	D	170X80X183	S6-C29
	3000	5000	3000	9.8	29.40	130X130	7.72	MS1H2-30C30CD-A331Z	SV660NT017I-FS-INT	16.5	41.25	E	250X90X230	S6-C29
	3000	5000	4000	12.6	37.80	130X130	12.1	MS1H2-40C30CD-A331Z	SV660NT017I-FS-INT	16.5	41.25	E	250X90X230	S6-C29
	3000	5000	5000	15.8	40.91	130X130	15.4	MS1H2-50C30CD-A331Z	SV660NT017I-FS-INT	16.5	41.25	E	250X90X230	S6-C29
	3000	5000	5000	15.8	47.60	130X130	15.4	MS1H2-50C30CD-A331Z	SV660NT021I-FS-INT	20.8	52.12	E	250X90X230	S6-C29
	1500	3000	850	5.39	13.50	130X130	13.3	MS1H3-85B15CD-A331Z	SV660NT3R5I-FS-INT	3.5	11.00	C	170X55X173	S6-C29
	1500	3000	1300	8.34	20.85	130X130	17.8	MS1H3-13C15CD-A331Z	SV660NT5R4I-FS-INT	5.4	14.00	C	170X55X173	S6-C29
	1500	3000	1800	11.5	28.75	130X130	25	MS1H3-18C15CD-A331Z	SV660NT8R4I-FS-INT	8.4	20.00	D	170X80X183	S6-C29
	1500	3000	2900	18.6	37.20	180X180	55	MS1H3-29C15CD-A331Z	SV660NT012I-FS-INT	11.9	29.75	D	170X80X183	S6-C39
	1500	3000	4400	28.4	71.10	180X180	88.9	MS1H3-44C15CD-A331Z	SV660NT017I-FS-INT	16.5	41.25	E	250X90X230	S6-C39
	1500	3000	5500	35	87.60	180X180	107	MS1H3-55C15CD-A331Z	SV660NT021I-FS-INT	20.8	52.12	E	250X90X230	S6-C39
	1500	3000	7500	48	117.63	180X180	141	MS1H3-75C15CD-A331Z	SV660NT026I-FS-INT	25.7	64.25	E	250X90X230	S6-C39

*Brake option not available.
All MS1 motors are CE certified and UL listed.

2.2 SV660P - Single-Axis Pulse Servo Driver

Performance and flexibility in a compact footprint.

- User friendly installation
- Easy set-up and tuning
- CANopen (C) and CANlink (A) variants also available
- Speed loop bandwidth up to 2kHz
- Supply voltage: Single phase 220V; Three phase 220V; Three phase 380V
- 0.1-7.5 kW
- Complies with CE and U

Product variants:

(1) SV660P - pulse control variant
Pulse interface for position control (4MHz maximum input frequency).
(2) SV660C - CANopen variant
Compliant with CiA 402 device profile (IEC 61800-7-201/301), supporting several operation modes.
(3) SV660A - CANlink variant
Uses our proprietary protocol, in combination with our controller products

Power supply voltage	Motor base speed (RPM)	Motor maximum speed (RPM)	Motor power (W)	Motor rated torque (N·m)	Motor peak torque (N·m)	Motor frame size (mm)	Rotor inertia (0.0001x kg·m2)	MS1 motor type	SV660x type Where "x" can be the P (pulse), C (CANopen) or A (CANlink) variants	SV660x rated current (A)	SV660x peak current (A)	Size	Dimensions H x W x D (mm)	Connector kit
1PH 220 V	3000	6000	50	0.16	0.56	40X40	0.026	MS1H1-05B30CB-A330Z	SV660xS1R6I-INT	1.6	5.80	A	170X40X150	S6-C22
	3000	6000	100	0.32	1.12	40X40	0.041	MS1H1-10B30CB-A330Z	SV660xS1R6I-INT	1.6	5.80	A	170X40X150	S6-C22
	3000	6000	200	0.64	2.24	60X60	0.207	MS1H1-20B30CB-A331Z	SV660xS1R6I-INT	1.6	5.80	A	170X40X150	S6-C22
	3000	6000	400	1.27	4.46	60X60	0.376	MS1H1-40B30CB-A331Z	SV660xS2R8I-INT	2.8	10.10	A	170X40X150	S6-C22
	3000	6000	400	1.27	4.46	60X60	0.657	MS1H4-40B30CB-A331Z	SV660xS2R8I-INT	2.8	10.10	A	170X40X150	S6-C22
	3000	6000	550	1.75	6.13	80X80	1.06	MS1H1-55B30CB-A331Z*	SV660xS5R5I-INT	5.5	16.90	B	170X50X173	S6-C22
	3000	6000	750	2.39	8.36	80X80	1.38	MS1H1-75B30CB-A331Z	SV660xS5R5I-INT	5.5	16.90	B	170X50X173	S6-C22
	3000	6000	750	2.39	8.36	80X80	2	MS1H4-75B30CB-A331Z	SV660xS5R5I-INT	5.5	16.90	B	170X50X173	S6-C22
1/3 PH 220 V	1500	3000	850	5.39	13.50	130X130	13.3	MS1H3-85B15CB-A331Z	SV660xS7R6I-INT	7.6	23.00	C	170X55X173	S6-C29
	3000	6000	1000	3.18	9.12	80X80	1.75	MS1H1-10C30CB-A331Z*	SV660xS7R6I-INT	7.6	23.00	C	170X55X173	S6-C22
	3000	6000	1000	3.18	11.10	80X80	1.75	MS1H1-10C30CB-A331Z*	SV660xS012I-INT	11.6	32.00	D	170X80X183	S6-C22
	3000	6000	1000	3.18	9.54	100X100	1.87	MS1H2-10C30CB-A331Z	SV660xS7R6I-INT	7.6	23.00	C	170X55X173	S6-C29
	1500	3000	1300	8.34	20.85	130X130	17.8	MS1H3-13C15CB-A331Z	SV660xS012I-INT	11.6	32.00	D	170X80X183	S6-C29
	3000	5000	1500	4.9	14.70	100X100	2.46	MS1H2-15C30CB-A331Z	SV660xS012I-INT	11.6	32.00	D	170X80X183	S6-C29
3 PH 400 V	3000	6000	1000	3.18	9.54	100X100	1.87	MS1H2-10C30CD-A331Z	SV660xT5R4I-INT	5.4	14.00	C	170X55X173	S6-C29
	3000	5000	1500	4.9	14.70	100X100	2.46	MS1H2-15C30CD-A331Z	SV660xT5R4I-INT	5.4	14.00	C	170X55X173	S6-C29
	3000	5000	2000	6.36	19.10	100X100	3.06	MS1H2-20C30CD-A331Z	SV660xT8R4I-INT	8.4	20.00	D	170X80X183	S6-C29
	3000	5000	2500	7.96	19.12	100X100	3.65	MS1H2-25C30CD-A331Z	SV660xT8R4I-INT	8.4	20.00	D	170X80X183	S6-C29
	3000	5000	2500	7.96	23.90	100X100	3.65	MS1H2-25C30CD-A331Z	SV660xT012I-INT	11.9	29.75	D	170X80X183	S6-C29
	3000	5000	3000	9.8	29.16	130X130	7.72	MS1H2-30C30CD-A331Z	SV660xT012I-INT	11.9	29.75	D	170X80X183	S6-C29
	3000	5000	3000	9.8	29.40	130X130	7.72	MS1H2-30C30CD-A331Z	SV660xT017I-INT	16.5	41.25	E	250X90X230	S6-C29
	3000	5000	4000	12.6	37.80	130X130	12.1	MS1H2-40C30CD-A331Z	SV660xT017I-INT	16.5	41.25	E	250X90X230	S6-C29
	3000	5000	5000	15.8	40.91	130X130	15.4	MS1H2-50C30CD-A331Z	SV660xT017I-INT	16.5	41.25	E	250X90X230	S6-C29
	3000	5000	5000	15.8	47.60	130X130	15.4	MS1H2-50C30CD-A331Z	SV660xT021I-INT	20.8	52.12	E	250X90X230	S6-C29
	1500	3000	850	5.39	13.50	130X130	13.3	MS1H3-85B15CD-A331Z	SV660xT3R5I-INT	3.5	11.00	C	170X55X173	S6-C29
	1500	3000	1300	8.34	20.85	130X130	17.8	MS1H3-13C15CD-A331Z	SV660xT5R4I-INT	5.4	14.00	C	170X55X173	S6-C29
	1500	3000	1800	11.5	28.75	130X130	25	MS1H3-18C15CD-A331Z	SV660xT8R4I-INT	8.4	20.00	D	170X80X183	S6-C29
	1500	3000	2900	18.6	37.20	180X180	55	MS1H3-29C15CD-A331Z	SV660xT012I-INT	11.9	29.75	D	170X80X183	S6-C39
	1500	3000	4400	28.4	71.10	180X180	88.9	MS1H3-44C15CD-A331Z	SV660xT017I-INT	16.5	41.25	E	250X90X230	S6-C39
	1500	3000	5500	35	87.60	180X180	107	MS1H3-55C15CD-A331Z	SV660xT021I-INT	20.8	52.12	E	250X90X230	S6-C39
	1500	3000	7500	48	117.63	180X180	141	MS1H3-75C15CD-A331Z	SV660xT026I-INT	25.7	64.25	E	250X90X230	S6-C39

2.3 SV660F – Single-Axis PROFINET Servo Driver

High dynamic performance with a compact footprint:
the SV660F servo solution for industrial automation applications.

- User friendly installation
- Easy set-up and tuning
- Ultra-fast 4.5kHz current loop
- Safe Torque Off - SIL3
- PROFINET RT and IRT communication
- Supports PROFIdrive device profile

Power supply voltage	Motor base speed (RPM)	Motor maximum speed (RPM)	Motor power (W)	Motor rated torque (N·m)	Motor peak torque (N·m)	Motor frame size (mm)	Rotor inertia (0.0001x kg·m2)	MS1 motor type	SV660F type	SV660F rated current (A)	SV660F peak current (A)	Size	Dimensions H x W x D (mm)	Connector kit
1PH 220V	3000	6000	50	0.16	0.56	40X40	0.026	MS1H1-05B30CB-A330Z	SV660FS1R6I	1.6	5.80	A	170X40X150	S6-C22
	3000	6000	100	0.32	1.12	40X40	0.041	MS1H1-10B30CB-A330Z	SV660FS1R6I	1.6	5.80	A	170X40X150	S6-C22
	3000	6000	200	0.64	2.24	60X60	0.207	MS1H1-20B30CB-A331Z	SV660FS1R6I	1.6	5.80	A	170X40X150	S6-C22
	3000	6000	400	1.27	4.46	60X60	0.376	MS1H1-40B30CB-A331Z	SV660FS2R8I	2.8	10.10	A	170X40X150	S6-C22
	3000	6000	400	1.27	4.46	60X60	0.657	MS1H4-40B30CB-A331Z	SV660FS2R8I	2.8	10.10	A	170X40X150	S6-C22
	3000	6000	550	1.75	6.13	80X80	1.06	MS1H1-55B30CB-A331Z*	SV660FS5R5I	5.5	16.90	B	170X50X173	S6-C22
	3000	6000	750	2.39	8.36	80X80	1.38	MS1H1-75B30CB-A331Z	SV660FS5R5I	5.5	16.90	B	170X50X173	S6-C22
	3000	6000	750	2.39	8.36	80X80	2	MS1H4-75B30CB-A331Z	SV660FS5R5I	5.5	16.90	B	170X50X173	S6-C22
1/3 PH 220 V	1500	3000	850	5.39	13.50	130X130	13.3	MS1H3-85B15CB-A331Z	SV660FS7R6I	7.6	23.00	C	170X55X173	S6-C29
	3000	6000	1000	3.18	9.12	80X80	1.75	MS1H1-10C30CB-A331Z*	SV660FS7R6I	7.6	23.00	C	170X55X173	S6-C22
	3000	6000	1000	3.18	11.10	80X80	1.75	MS1H1-10C30CB-A331Z*	SV660FS012I	11.6	32.00	D	170X80X183	S6-C22
	3000	6000	1000	3.18	9.54	100X100	1.87	MS1H2-10C30CB-A331Z	SV660FS7R6I	7.6	23.00	C	170X55X173	S6-C29
	1500	3000	1300	8.34	20.85	130X130	17.8	MS1H3-13C15CB-A331Z	SV660FS012I	11.6	32.00	D	170X80X183	S6-C29
	3000	5000	1500	4.9	14.70	100X100	2.46	MS1H2-15C30CB-A331Z	SV660FS012I	11.6	32.00	D	170X80X183	S6-C29
3 PH 400 V	3000	6000	1000	3.18	9.54	100X100	1.87	MS1H2-10C30CD-A331Z	SV660FT5R4I	5.4	14.00	C	170X55X173	S6-C29
	3000	5000	1500	4.9	14.70	100X100	2.46	MS1H2-15C30CD-A331Z	SV660FT5R4I	5.4	14.00	C	170X55X173	S6-C29
	3000	5000	2000	6.36	19.10	100X100	3.06	MS1H2-20C30CD-A331Z	SV660FT8R4I	8.4	20.00	D	170X80X183	S6-C29
	3000	5000	2500	7.96	19.12	100X100	3.65	MS1H2-25C30CD-A331Z	SV660FT8R4I	8.4	20.00	D	170X80X183	S6-C29
	3000	5000	2500	7.96	23.90	100X100	3.65	MS1H2-25C30CD-A331Z	SV660FT012I	11.9	29.75	D	170X80X183	S6-C29
	3000	5000	3000	9.8	29.16	130X130	7.72	MS1H2-30C30CD-A331Z	SV660FT012I	11.9	29.75	D	170X80X183	S6-C29
	3000	5000	3000	9.8	29.40	130X130	7.72	MS1H2-30C30CD-A331Z	SV660FT017I	16.5	41.25	E	250X90X230	S6-C29
	3000	5000	4000	12.6	37.80	130X130	12.1	MS1H2-40C30CD-A331Z	SV660FT017I	16.5	41.25	E	250X90X230	S6-C29
	3000	5000	5000	15.8	40.91	130X130	15.4	MS1H2-50C30CD-A331Z	SV660FT017I	16.5	41.25	E	250X90X230	S6-C29
	3000	5000	5000	15.8	47.60	130X130	15.4	MS1H2-50C30CD-A331Z	SV660FT021I	20.8	52.12	E	250X90X230	S6-C29
	1500	3000	850	5.39	13.50	130X130	13.3	MS1H3-85B15CD-A331Z	SV660FT3R5I	3.5	11.00	C	170X55X173	S6-C29
	1500	3000	1300	8.34	20.85	130X130	17.8	MS1H3-13C15CD-A331Z	SV660FT5R4I	5.4	14.00	C	170X55X173	S6-C29
	1500	3000	1800	11.5	28.75	130X130	25	MS1H3-18C15CD-A331Z	SV660FT8R4I	8.4	20.00	D	170X80X183	S6-C29
	1500	3000	2900	18.6	37.20	180X180	55	MS1H3-29C15CD-A331Z	SV660FT012I	11.9	29.75	D	170X80X183	S6-C39
	1500	3000	4400	28.4	71.10	180X180	88.9	MS1H3-44C15CD-A331Z	SV660FT017I	16.5	41.25	E	250X90X230	S6-C39
	1500	3000	5500	35	87.60	180X180	107	MS1H3-55C15CD-A331Z	SV660FT021I	20.8	52.12	E	250X90X230	S6-C39
	1500	3000	7500	48	117.63	180X180	141	MS1H3-75C15CD-A331Z	SV660FT026I	25.7	64.25	E	250X90X230	S6-C39

*Brake option not available

2.4 SV670P – Single-Axis Pulse Servo Driver

- User friendly installation
- Easy set-up and tuning
- CANopen (C) and CANlink (A) variants also available
- Safe Torque Off - SIL 3
  - 1/3 ph 200V, 3 ph 400V, kW to 7.5kW
- Ultra-fast 4.5kHz current loop
- Feedback encoder interface: serial (Weton), Nikon and Tamagawa
- Second encoder interface: incremental quadrature
- +24VDC backup control supply variant available

Product variants:
(1) SV670P - pulse control variant
Pulse interface for position control (4MHz maximum input frequency).
(2) SV670C - CANopen variant
Compliant with CiA 402 device profile (IEC 61800-7-201/301), supporting several operation modes.
(3) SV670A - CANlink variant
Uses our proprietary protocol, in combination with our controller products

Power supply voltage	Motor base speed (RPM)	Motor max speed (RPM)	Motor power (W)	Motor rated torque (N·m)	Motor peak torque (N·m)	Motor frame size (mm)	Rotor inertia (0.0001x kg·m2)	SV670 current (rated)	SV670 current (peak)	MS1 motor type	SV670x type Where "x" can be the P (pulse), C (CANopen) or A (CANlink) variants	Size	Dimensions H x W x D (mm)	Motor mass (kg)	Drive mass (kg)	Connector kit
1PH 220 V	3000	6000	50	0.16	0.56	40X40	0.026	1.6	5.80	MS1H1-05B30CB-A330Z	SV670xS1R6I-FS(-INT)	A	170X45.5X150	0.5	1.13	S6-C22
	3000	6000	100	0.32	1.12	40X40	0.041	1.6	5.80	MS1H1-10B30CB-A330Z	SV670xS1R6I-FS(-INT)	A	170X45.5X150	0.5	1.13	S6-C22
	3000	6000	200	0.64	2.24	60X60	0.207	1.6	5.80	MS1H1-20B30CB-A331Z	SV670xS1R6I-FS(-INT)	A	170X45.5X150	1	1.13	S6-C22
	3000	6000	400	1.27	4.46	60X60	0.376	2.8	10.10	MS1H1-40B30CB-A331Z	SV670xS2R8I-FS(-INT)	A	170X45.5X150	1	1.13	S6-C22
	3000	6000	400	1.27	4.46	60X60	0.657	2.8	10.10	MS1H4-40B30CB-A331Z	SV670xS2R8I-FS(-INT)	A	170X45.5X150	1.5	1.13	S6-C22
	3000	6000	550	1.75	6.13	80X80	1.06	5.5	16.90	MS1H1-55B30CB-A331Z*	SV670xS5R5I-FS(-INT)	C	170X55X173	2	1.5	S6-C22
	3000	6000	750	2.39	8.36	80X80	1.38	5.5	16.90	MS1H1-75B30CB-A331Z	SV670xS5R5I-FS(-INT)	C	170X55X173	2.5	1.5	S6-C22
	3000	6000	750	2.39	8.36	80X80	2	5.5	16.90	MS1H4-75B30CB-A331Z	SV670xS5R5I-FS(-INT)	C	170X55X173	2.5	1.5	S6-C22
1/3 PH 220 V	1500	3000	850	5.39	13.50	130X130	13.3	7.6	23.00	MS1H3-85B15CB-A331Z	SV670xS7R6I-FS(-INT)	C	170X55X173	6.7	1.5	S6-C29
	3000	6000	1000	3.18	9.12	80X80	1.75	7.6	23.00	MS1H1-10C30CB-A331Z*	SV670xS7R6I-FS(-INT)	C	170X55X173	3	1.5	S6-C22
	3000	6000	1000	3.18	11.10	80X80	1.75	11.6	32.00	MS1H1-10C30CB-A331Z*	SV670xS012I-FS(-INT)	D	170X80X183	3	2	S6-C22
	3000	6000	1000	3.18	9.54	100X100	1.87	7.6	23.00	MS1H2-10C30CB-A331Z	SV670xS7R6I-FS(-INT)	C	170X55X173	5.6	1.5	S6-C29
	1500	3000	1300	8.34	20.85	130X130	17.8	11.6	32.00	MS1H3-13C15CB-A331Z	SV670xS012I-FS(-INT)	D	170X80X183	8.15	2	S6-C29
	3000	5000	1500	4.9	14.70	100X100	2.46	11.6	32.00	MS1H2-15C30CB-A331Z	SV670xS012I-FS(-INT)	D	170X80X183	6.8	2	S6-C29
3 PH 220 V	3000	6000	2000	6.36	19.10	100x100	2.92	18.0	45.00	MS1H2-20C30CB-A331R	SV670xS018I-FS(-INT)	E	250x90x230	8.00	3.94	S6-C29
	3000	6000	3000	7.96	23.90	100x100	3.49	22.0	55.00	MS1H2-25C30CB-A331R	SV670xS022I-FS(-INT)	E	250x90x230	9.10	3.94	S6-C29
	3000	6000	3000	9.8	29.40	130x130	6.4	22.0	55.00	MS1H2-30C30CB-A331R	SV670xS022I-FS(-INT)	E	250x90x230	11.60	3.94	S6-C29
	3000	6000	4000	12.6	37.80	130x130	9	27.0	67.50	MS1H2-40C30CB-A331R	SV670xS027I-FS(-INT)	E	250x90x230	16.60	3.94	S6-C29
	3000	6000	5000	15.8	47.40	130x130	11.6	27.0	67.50	MS1H2-50C30CB-A331R	SV670xS027I-FS(-INT)	E	250x90x230	18.80	3.94	S6-C29
	1500	4500	1800	11.5	28.75	130x130	24.9	18.0	45.00	MS1H3-18C15CB-A331R	SV670xS018I-FS(-INT)	E	250x90x230	8.50	3.94	S6-C29
	1500	4500	2900	18.6	46.50	180x180	44.7	22.0	55.00	MS1H3-29C15CB-A331R	SV670xS022I-FS(-INT)	E	250x90x230	13.80	3.94	S6-C39
	1500	4500	4400	28.4	71.10	180x180	64.9	27.0	67.50	MS1H3-44C15CB-A331R	SV670xS027I-FS(-INT)	E	250x90x230	17.40	3.94	S6-C39
3 PH 400 V	3000	6000	1000	3.18	9.54	100X100	1.87	5.4	14.00	MS1H2-10C30CD-A331Z	SV670xT5R4I-FS(-INT)	C	170X55X173	5.65	1.5	S6-C29
	3000	5000	1500	4.9	14.70	100X100	2.46	5.4	14.00	MS1H2-15C30CD-A331Z	SV670xT5R4I-FS(-INT)	C	170X55X173	6.7	1.5	S6-C29
	3000	5000	2000	6.36	19.10	100X100	3.06	8.4	20.00	MS1H2-20C30CD-A331Z	SV670xT8R4I-FS(-INT)	D	170X80X183	8.1	2	S6-C29
	3000	5000	2500	7.96	19.12	100X100	3.65	8.4	20.00	MS1H2-25C30CD-A331Z	SV670xT8R4I-FS(-INT)	D	170X80X183	9.1	2	S6-C29
	3000	5000	2500	7.96	23.90	100X100	3.65	11.9	29.75	MS1H2-25C30CD-A331Z	SV670xT012I-FS(-INT)	D	170X80X183	9.1	2	S6-C29
	3000	5000	3000	9.8	29.16	130X130	7.72	11.9	29.75	MS1H2-30C30CD-A331Z	SV670xT012I-FS(-INT)	D	170X80X183	11.6	2	S6-C29
	3000	5000	3000	9.8	29.40	130X130	7.72	16.5	41.25	MS1H2-30C30CD-A331Z	SV670xT017I-FS(-INT)	E	250X90X230	11.6	3.94	S6-C29
	3000	5000	4000	12.6	37.80	130X130	12.1	16.5	41.25	MS1H2-40C30CD-A331Z	SV670xT017I-FS(-INT)	E	250X90X230	16.6	3.94	S6-C29
	3000	5000	5000	15.8	40.91	130X130	15.4	16.5	41.25	MS1H2-50C30CD-A331Z	SV670xT017I-FS(-INT)	E	250X90X230	18.8	3.94	S6-C29
	3000	5000	5000	15.8	47.60	130X130	15.4	20.8	52.12	MS1H2-50C30CD-A331Z	SV670xT021I-FS(-INT)	E	250X90X230	18.8	3.94	S6-C29
	1500	3000	850	5.39	13.50	130X130	13.3	3.5	11.00	MS1H3-85B15CD-A331Z	SV670xT3R5I-FS(-INT)	C	170X55X173	6.7	1.5	S6-C29
	1500	3000	1300	8.34	20.85	130X130	17.8	5.4	14.00	MS1H3-13C15CD-A331Z	SV670xT5R4I-FS(-INT)	C	170X55X173	8.2	1.5	S6-C29
	1500	3000	1800	11.5	28.75	130X130	25	8.4	20.00	MS1H3-18C15CD-A331Z	SV670xT8R4I-FS(-INT)	D	170X80X183	9.55	2	S6-C29
	1500	3000	2900	18.6	37.20	180X180	55	11.9	29.75	MS1H3-29C15CD-A331Z	SV670xT012I-FS(-INT)	D	170X80X183	16.6	2	S6-C39
	1500	3000	4400	28.4	71.10	180X180	88.9	16.5	41.25	MS1H3-44C15CD-A331Z	SV670xT017I-FS(-INT)	E	250X90X230	21.25	3.94	S6-C39
	1500	3000	5500	35	87.60	180X180	107	20.8	52.12	MS1H3-55C15CD-A331Z	SV670xT021I-FS(-INT)	E	250X90X230	26.8	3.94	S6-C39
	1500	3000	7500	48	117.63	180X180	141	25.7	64.25	MS1H3-75C15CD-A331Z	SV670xT026I-FS(-INT)	E	250X90X230	35.2	3.94	S6-C39

2.5 SV680N servo driver

The SV680N series servo driver is a high-end servo drive designed based on global leading standards and high-end application needs. It is featured with high speed, high precision, high performance, and tuning-free function. Covering a power range from 0.05kW to 7.5kW, the SV680N series servo driver carries EtherCAT communication interfaces to work with the host controller for a networked operation of multiple servo drivers. It is equipped with the latest ITune function that allows adaptive stiffness level setting, inertia auto-tuning, and vibration suppression for easy control. The SV680N series servo driver, together with an MS1 series high response servo motor (with ultra-low, low or medium inertia) equipped with a 26-bit single-turn/multi-turn absolute encoder, aims to deliver a quiet and stable operation and accurate process control through the fully closed-loop function and internal process segment function.

Description of Part Number

SV680 N S 2R8 I
① ② ③ ④ ⑤

① Product series SV680 series servo drive SV680L: SV680 series servo drive for direct-drive motors	**④ Rated output current**	**⑤ Configuration** I: Standard type S: Functional safety type ...
② Product type N: Network type P: Pulse type F: Profinet (upcoming)	S: 220 V 1R6: 1.6 A 2R8: 2.8 A 5R5: 5.5 A 7R6: 7.6 A 012: 12. 0 A 018: 18.0 A 022: 22.0 A 027: 27.0 A	
③ Voltage class S: 220 V T: 380 V	T: 380 V 3R5: 3.5 A 5R4: 5.4 A 8R4: 8.4 A 012: 12.0 A 017: 17.0 A 021: 21.0 A 026: 26.0 A	

	SV680N
Control mode	Cyclic synchronous position mode
	Cyclic synchronous velocity mode
	Cyclic synchronous torque mode
	Profile position mode
	Profile velocity mode
	Profile torque mode
	Homing mode
	Fully closed- loop control
Terminal	STO
	CN1 16- pin I/O terminal
	DB44
	DB15
Communication protocol	EtherCAT

Single-phase 220V drivers

Item		Size A		Size C		Size D
Servo drive model SV680N****I		S1R6	S2R8	S5R5	S7R6	S012
Servo drive power (kW)		0.2	0.4	0.75	1.0	1.5
Max. applicable motor capacity (kW)		0.2	0.4	0.75	1.0	1.8
Power supply capacity (kVA)		1.4	2.8	4.6	6.0	8.0
Continuous output current (Arms)		1.6	2.8	5.5	7.6	12.0
Max. output current (Arms)		5.8	10.1	16.9	23.0	32.0
Main circuit	Continuous input current (Arms)	2.3	4.0	7.9	9.6	12.8
	Main circuit power supply	Single-phase 200 VAC to 240 VAC, -10% to +10%, 50/60 Hz				
Control circuit	Control circuit power supply	Single-phase 200 VAC to 240 VAC, -10% to +10%, 50/60 Hz				
Regenerative resistor	Resistance	Non-standard	Non-standard	50	25	25
	Power	Non-standard	Non-standard	50	80	80
	Min. permissible resistance of external regenerative resistor (Ω)	40	40	40	20	15
	Max. braking energy absorbed by the capacitor (J)	9.3	18.59	32.42	32.42	47.68
	Configuration	Built-in and external regenerative resistors are supported by the whole SV680 family except servo drives in size A, which support external regenerative resistors only.				
Cooling method		Natural air cooling		Forced air cooling		
Overvoltage category		III				

3-phase 220V drivers

Item		Size A		Size C		Size D	Size E		
Servo drive model SV680N****I		S1R6	S2R8	S5R5	S7R6	S012	S018	S022	S027
Servo drive power (kW)		0.2	0.4	0.75	1.0	1.5	2.0	2.5	5.0
Max. applicable motor capacity (kW)		0.2	0.4	0.75	1.0	1.8	2.0	2.5	5.0
Power supply capacity (kVA)		1.21	2.42	3.84	5.05	6.68	8.33	10.42	20.08
Continuous output current (Arms)		1.6	2.8	5.5	7.6	12.0	18.0	22.0	27.0
Max. output current (Arms)		5.8	10.1	16.9	23.0	32.0	45	55	67.5
Main circuit	Continuous input current (Arms)	1.1	2.3	4.4	5.1	8.0	8.7	11.0	23.8
	Main circuit power supply	Three-phase 200 VAC to 240 VAC, -10% to +10%, 50/60 Hz							
	Control circuit power supply	Single-phase 200 VAC to 240 VAC, -10% to +10%, 50/60 Hz							
Regenerative resistor	Resistance	Non-standard	Non-standard	50	25	25	20	20	20
	Power	Non-standard	Non-standard	50	80	80	100	100	100
	Min. permissible resistance of external regenerative resistor (Ω)	40	40	40	20	15	20	20	20
	Max. braking energy absorbed by the capacitor (J)	9.3	18.59	32.42	32.42	47.68	64.84	78.19	95.36
	Configuration	Built-in and external regenerative resistors are supported by the whole SV680 family except servo drives in size A, which support external regenerative resistors only.					Built-in regenerative resistor by default, external regenerative resistor supported		
Cooling method		Natural air cooling		Forced air cooling					
Overvoltage category		III							

3-phase 380V drivers

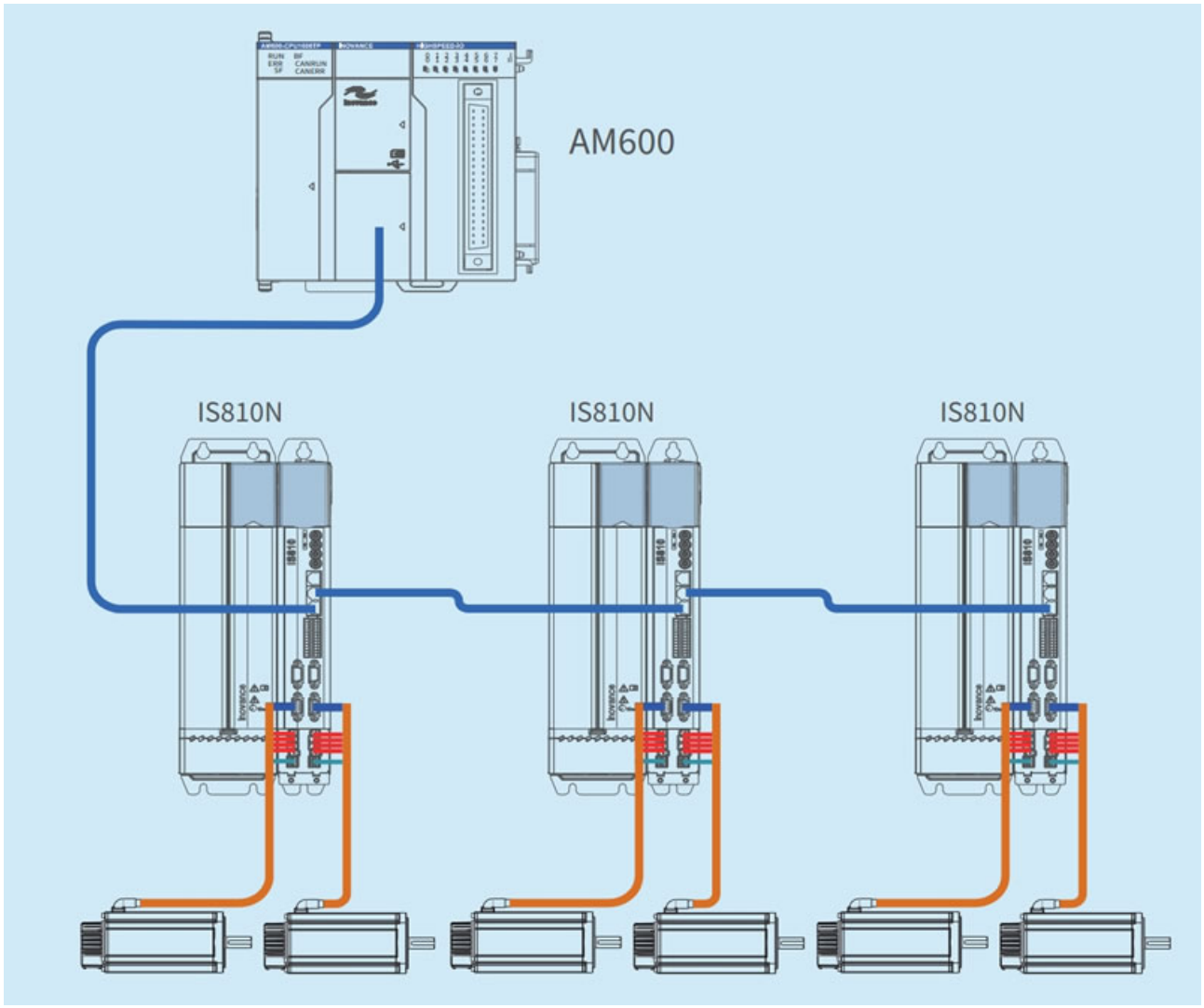
Item		Size C		Size D		Size E		
Servo drive model SV680N****I		T3R5	T5R4	T8R4	T012	T017	T021	T026
Servo drive power (kW)		1.0	1.5	2.0	3.0	5.0	6.0	7.5
Max. applicable motor capacity (kW)		1.0	1.5	2.0	3.0	4.4	5.5	7.5
Power supply capacity (kVA)		6.05	9.08	10.23	15.15	22.25	25.0	31.25
Continuous output current (Arms)		3.5	5.4	8.4	12.0	17.0	21.0	26.0
Max. output current (Arms)		11.0	14.0	20.0	30.0	42.5	52.5	65.0
Main circuit	Continuous input current (Arms)	2.4	3.6	5.6	8.0	12.0	16.0	21.0
	Main circuit power supply	Three-phase 380 VAC to 480 VAC, -10% to +10%, 50/60 Hz						
Control circuit	Control circuit power supply	Single-phase 380 VAC to 480 VAC, -10% to +10%, 50/60 Hz						
Regenerative resistor	Resistance	100	100	50	50	35	35	35
	Power	80	80	80	80	100	100	100
	Min. permissible resistance of external regenerative resistor (Ω)	80	60	45	40	25	25	25
	Max. braking energy absorbed by the capacitor (J)	28.23	34.28	50.41	50.41	82.67	100.82	100.82
	Configuration	Built-in regenerative resistor						
Cooling method		Forced air cooling						
Overvoltage category		III						

2.6 IS810N servo drivers

Multi-axes servo drive platform – for maximum performance in the most demanding applications

- Common power supply module: 22-355kW
- Single and dual axes modules: 850 W -75kW*
- Three phase 400V supply voltage
- Ultra-fast 4.5kHz current loop
- Speed loop bandwidth up to 2kHz
- Safe Torque Off – SIL 3
- Complies with CE

*dual axes available up to 18.5kW



IS810N drive Product ordering code

IS810 N 50M 4T D 3R5 INT
① ② ③ ④ ⑤ ⑥ ⑦

① **Servo drive series:**
IS810

② **Control board type:**
N: Ethercat

③ **Module type:**
50M: drive

④ **Voltage supply:**
4T: 380-480 V

⑤ **Drive module type:**
S: single
D: dual

⑥ **Rated current:**

3R5	3.5 A	037	37 A
5R4	5.4 A	045	45 A
8R4	8.4 A	060	60 A
012	11.9 A	075	75 A
017	16.5 A	091	91 A
021	20.8 A	112	112 A
026	25.7 A	152	152 A
032	32 A		

⑦ **Model:**
INT: international edition

MD810 rectifier Product ordering code

MD810 - 20M 4T 45 G 1 0 0 - INT
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① **Rectifier series:**
MD810

② **Module type:**
20M: rectifier

③ **Voltage supply:**
4T: 380–480 V

④ **Rectifier (rated power):**
22: 22 kW
45: 45 kW
110: 110 kW
160: 160 kW
355: 355 kW

⑤ **Model**
G: general model

⑥ Optional functional component
Rectifier:
0: without built-in brake
1: with built-in brake (22 & 45 kW only)

⑦ Optional communication component
Rectifier:
0: built-in RS485 (Modbus-RTU), CANopen and CANlink communications

⑧ Optional features
Rectifier:
0: no optional features available

⑨ **Model:**
INT: international edition

Motor base speed (RPM)	Motor maximum speed (RPM)	Motor power (W)	Motor rated torque (N·m)	Motor peak torque (N·m)	Motor frame size (mm)	Rotor inertia (0.0001x kg·m2)	MS1 motor type	IS810N type**	IS810N rated current (A)	IS810N peak current (A)	Size	Dimensions H x W x D (mm)
3,000	6,000	50	0.16	0.56	40x40	0.026	MS1H1-05B30CB-A330Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
3,000	6,000	100	0.32	1.12	40x40	0.041	MS1H1-10B30CB-A330Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
3,000	6,000	200	0.64	2.24	60x60	0.207	MS1H1-20B30CB-A331Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
3,000	6,000	400	1.27	3.75	60x60	0.376	MS1H1-40B30CB-A331Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
3,000	6,000	400	1.27	4.46	60x60	0.376	MS1H1-40B30CB-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	6,000	400	1.27	3.75	60x60	0.657	MS1H4-40B30CB-A331Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
3,000	6,000	400	1.27	4.46	60x60	0.657	MS1H4-40B30CB-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	6,000	550	1.75	5.72	80x80	1.06	MS1H1-55B30CB-A331Z*	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	6,000	750	2.39	6.93	80x80	1.38	MS1H1-75B30CB-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3000	6000	750	2.39	8.36	80x80	1.38	MS1H1-75B30CB-A331Z	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
3000	6000	750	2.39	6.93	80x80	2	MS1H4-75B30CB-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	6,000	750	2.39	8.36	80x80	2	MS1H4-75B30CB-A331Z	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
3,000	6,000	1,000	3.18	7.93	80x80	1.75	MS1H1-10C30CB-A331Z*	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
3,000	6,000	1,000	3.18	11.10	80x80	1.75	MS1H1-10C30CB-A331Z*	IS810N50M4T_012INT	12.0	28.00	1	400 x 50 x 305
3,000	6,000	1,000	3.18	9.54	100x100	1.87	MS1H2-10C30CD-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	5,000	1,500	4.9	14.70	100x100	2.46	MS1H2-15C30CD-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	5,000	2,000	6.36	19.10	100x100	3.06	MS1H2-20C30CD-A331Z	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
3,000	5,000	2,500	7.96	19.12	100x100	3.65	MS1H2-25C30CD-A331Z	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
3,000	5,000	2,500	7.96	23.90	100x100	3.65	MS1H2-25C30CD-A331Z	IS810N50M4T_012INT	12.0	28.00	1	400 x 50 x 305
3,000	5,000	3,000	9.8	27.44	130x130	7.72	MS1H2-30C30CD-A331Z	IS810N50M4T_012INT	12.0	28.00	1	400 x 50 x 305
3,000	5,000	3,000	9.8	29.40	130x130	7.72	MS1H2-30C30CD-A331Z	IS810N50M4T_017INT	16.5	42.00	2	400 x 100 x 305
3,000	5,000	4,000	12.6	37.80	130x130	12.1	MS1H2-40C30CD-A331Z	IS810N50M4T_017INT	16.5	42.00	2	400 x 100 x 305
3,000	5,000	5,000	15.8	41.65	130x130	15.4	MS1H2-50C30CD-A331Z	IS810N50M4T_017INT	16.5	42.00	2	400 x 100 x 305
3,000	5,000	5,000	15.8	47.60	130x130	15.4	MS1H2-50C30CD-A331Z	IS810N50M4T_021INT	20.8	55.00	2	400 x 100 x 305
1,500	3,000	850	5.39	13.50	130x130	13.3	MS1H3-85B15CD-A331Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
1,500	3,000	1,300	8.34	20.85	130x130	17.8	MS1H3-13C15CD-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
1,500	3,000	1,800	11.5	28.75	130x130	25	MS1H3-18C15CD-A331Z	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
1,500	3,000	2,900	18.6	37.20	180x180	55	MS1H3-29C15CD-A331Z	IS810N50M4T_012INT	12.0	28.00	1	400 x 50 x 305
1,500	3,000	4,400	28.4	71.10	180x180	88.9	MS1H3-44C15CD-A331Z	IS810N50M4T_017INT	16.5	42.00	2	400 x 100 x 305
1,500	3,000	5,500	35	87.60	180x180	107	MS1H3-55C15CD-A331Z	IS810N50M4T_021INT	20.8	55.00	2	400 x 100 x 305
1,500	3,000	7,500	48	119.00	180x180	141	MS1H3-75C15CD-A331Z	IS810N50M4T_026INT	25.7	65.00	2	400 x 100 x 305

*Motor does not have an option with a brake **All drives are available in single axis (TS) or dual axes (TD)

2.7 SV820N multi-axes servo drivers

A multi-axes servo platform, available in 3 or 4 axes versions, with a common power supply module. The drive features an ultra-fast control loop regulator and a high dynamic response rate. It is designed to seamlessly integrate with MS1 motors from 50-750W. Supports CANopen and EtherCAT communications

- Power supply unit: 1-2kW
- Single/double unit axis module: 1.1-7.6A
- Ultra-fast current loop
- STO SIL 3 – in accordance with EN/IEC 61800-5-2
- EtherCAT CiA 402 motion profile as standard
- Easy commissioning and installation
- Small footprint for robot applications
- IP67
- Complies with CE

SV820 - N 1S 2C 2C FS

① ② ③ ④ ⑤ ⑥

① **Drive series:**
SV820 series

② **Control board type:**
N: EtherCAT

③ **Power supply unit type:**
1S: 1 kW
2S: 2 kW

④ **Drive unit 1**
Dual axes drive unit (rated current per axis)
2C: 2.8 A (400 W)
2D: 4.6 A (750 W)

⑤ **Drive unit 2**
Single axis drive unit (rated current)
1C: 2.8 A (400 W)
1D: 4.6 A (750 W)

Dual axes drive unit (rated current per axis)
2C: 2.8 A (400 W)
2D: 4.6 A (750 W)

⑥ **Variant**
Blank: No STO
FS: STO version (default variant)
FH: robust design for harsh environments

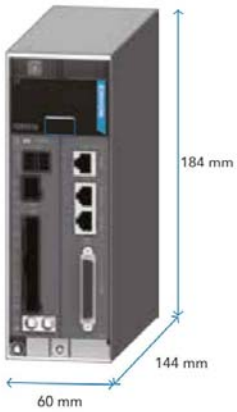
EtherCAT Drive Model	Axes	Input Power 220 V AC	Rated Output Power of Power Supply Unit	Axis 1 Output Current	Axis 2 Output Current	Peak Output Current (3 s)	Axis 3 Output Current	Axis 4 Output Current	Peak Output Current (3 s)
		Power supply unit		Drive unit 1			Drive unit 2		
SV820N2S2C2C	4 axes	Three phase	2 kW	2.8 A	2.8 A	8.4 A	2.8 A	2.8 A	8.4 A
SV820N2S2C2D	4 axes	Three phase	2 kW	2.8 A	2.8 A	8.4 A	4.6 A	4.6 A	13.8 A
SV820N1S2C1C	3 axes	Single/three phase	1 kW	2.8 A	2.8 A	8.4 A	2.8 A	-	8.4 A
SV820N2S2C1D	3 axes	Three phase	2 kW	2.8 A	2.8 A	8.4 A	4.6 A	-	13.8 A
SV820N2S2D1D	3 axes	Three phase	2 kW	4.6 A	4.6 A	13.8 A	4.6 A	-	13.8 A

2.8 A axis controls up to 400 Watt motors
4.6 A axis controls up to 750 Watt motors

Product dimensions

Single and dual axes drive unit dimensions

Power supply unit dimensions



4 axes unit dimensions

2.8 IS620 servo drivers

2.8.1 IS620N servo driver

Ethercat servo driver for industrial applications

- Speed loop bandwidth up to 1.2kHz
- Supply voltage: Single phase 220V; Three phase 220V; Three phase 380V
- 0.1-7.5kW
- EtherCAT communications
- Built-in keypad
- Fine tuning with PC software (InoServoShop)
- Inertia auto-tuning (on-line/off-line)

- Automatic gain tuning
- Adaptive notch filter
- Automatic/manual damping filter for low frequency resonance
- Complies with CE

2.8.2 IS620P servo driver
High performance servo system

- High speed loop bandwidth: up to 1.2kHz
- Supply voltage: Single phase 220V; Three phase 220V; Three phase 380V
- 0.1-7.5 kW
- Pulse/direction
- CANopen communications (IS620P-CO variant)
- Built-in keypad
- Fine tuning with PC software (InoServoShop)
- Inertia auto-tuning (on-line/off-line)
- Automatic gain tuning
- Adaptive notch filter
- Automatic/manual damping filter for low frequency resonance
- Complies with CE

IS620 P S 5R5 I - A - INT
① ② ③ ④ ⑤ ⑥ ⑦

① Series IS620 servo drive	④ Rated output current 1R6: 1.6 A … 021: 21 A 026: 26 A	⑥ Customized function A: 16-bit analog input C: CANlink CO: CANopen
② Product type P: pulse/analog N: EtherCAT		
③ Voltage class S: 220 Vac T: 400 Vac	⑤ Installation I: base mount	⑦ Version INT: international

Servo drive specifications

Single-phase 220 V

Frame size	SIZE-A		
Model no.	S1R6	S2R8	S5R5
Rated current (A)	1.6	2.8	5.5
Maximum current (A)	5.8	10.1	16.9
Input voltage	Single-phase 200 to 240 Vac, +10 to -15%, 50/60 Hz		
Internal DBR	No		50Ω / 50 W

Three-phase 220 V

SIZE-A	SIZE-C	
S5R5	S7R6	S012
5.5	7.6	11.6
16.9	17	28
Three-phase 200 to 240 Vac, +10 to -15%, 50/60 Hz		
50Ω / 50 W	25Ω / 80 W	

Three-phase 380 V

Frame size	SIZE-C				SIZE-E		
Model no.	T3R5	T5R4	T8R4	T012	T017	T021	T026
Rated current (A)	3.5	5.4	8.4	11.9	16.5	20.8	25.7
Maximum current (A)	8.5	14.0	20.0	24.0	42.0	55.0	65.0
Input voltage	Three-phase 380 to 440 Vac, +10 to -15%, 50/60 Hz						
Internal DBR	100Ω / 80 W		50Ω / 80 W		40Ω / 100 W		

Notes: internal DBR is built-in regenerative resistor specification

Models S1R6 and S2R8 are not configured with a built-in regenerative resistor. Use an external regenerative resistor if necessary

3. AC Drives (Frequency Inverters)

Our MD series of AC general purpose drives offer excellent performance, a wide range of functions and specifications, ease of use, and high reliability. Meanwhile, we also offer leading low voltage multidrive

products for applications requiring complex multidrive systems, such as metal processing, printing and packaging, or textile printing and dyeing. Our multidrive products adopt modular designs, and feature high performance, high security, and a high protection rating. Our main products are MD290, MD310, MD520 and MD580.

3.1 MD290 General Purpose AC Drives

Open loop, three phase, 400V, 0.4-500kW; 200VAC, 0.4-75kW

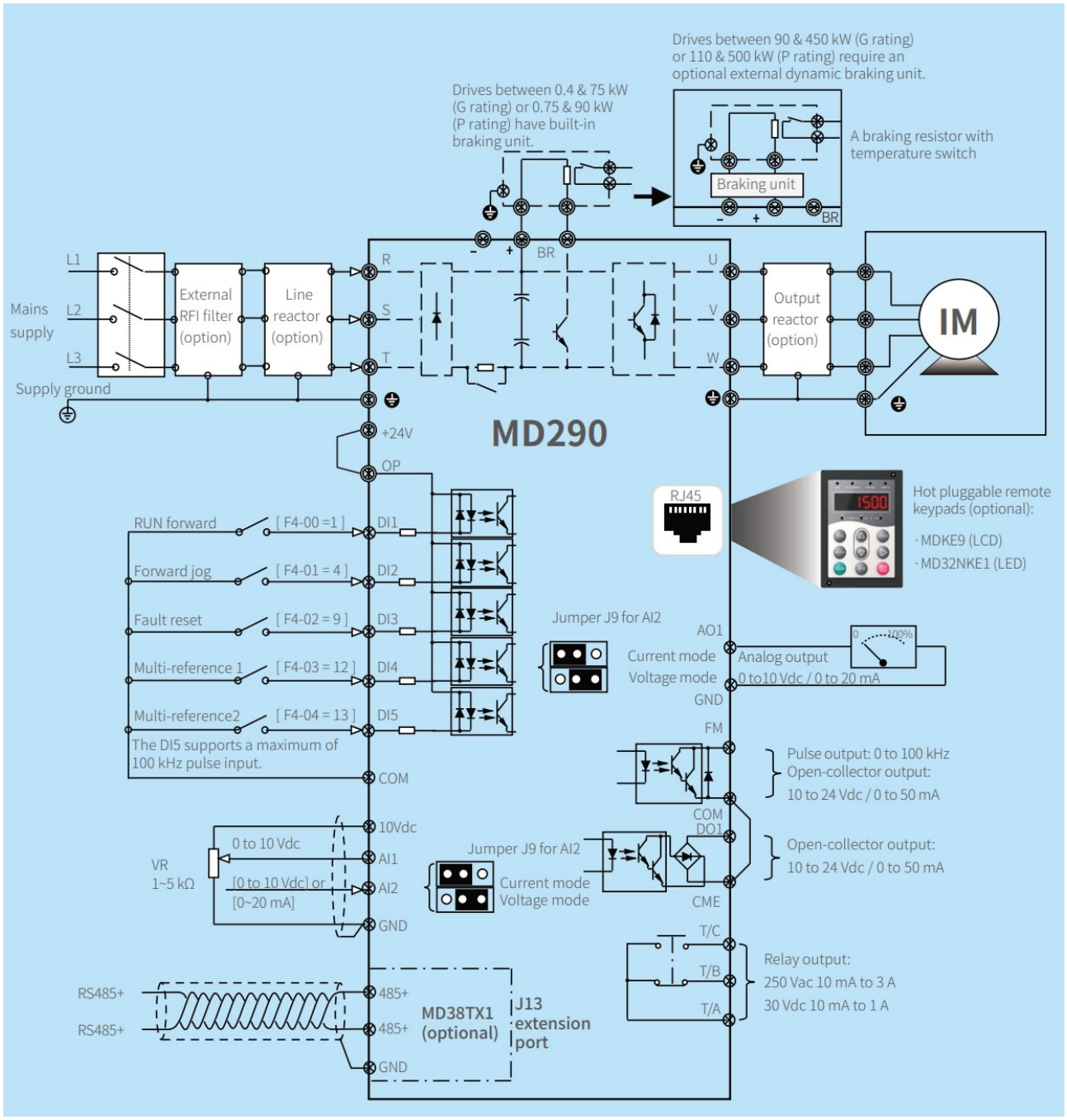
- Dual rated (G & P ratings), allowing optimized product selection
- Open loop V/f (with slip compensation)
- Automatic torque boost
- Slip compensation
- Communications options: Modbus-RTU; CANlink; PROFIBUS-DP; PROFINET; CANopen
- Simplified parameter for easy start-up
- 4-independent S-ramps
- Flexible programmable I/O connection
- User programmable function
- Variable DC injection braking
- Comprehensive trip diagnostics
- Output frequency 500 Hz
- Complies with CE and UL

Voltage class CE UL		Three-phase 380 to 480 Vac										
MD290TxxxG/yyyPB-INT		0.4G/0.7PB	0.7G/1.1PB	1.1G/1.5PB	1.5G/2.2PB	2.2G/3.0PB	3.0G/3.7PB	3.7G/5.5PB	5.5G/7.5PB	7.5G/11PB	11G/15PB	15G/18.5PB
Frame size		T1*1						T2		T3		T4
Drive input	Rated input voltage	Three-phase 380 to 480 Vac -15% to +10%										
	Rated input current [A]	1.8/2.5	2.4/3.7	3.7/4.6	4.6/6.4	6.3/9.1	9.0/11.3	11.4/15.9	16.7/22.4	21.9/32.9	32.2/39.7	41.3/44
	Power capacity [kVA]	2.3	3.4	4.2	5.9	8.3	10.4	15.5	20.5	30.2	38.2	44.4
	Rated input frequency	50/60 Hz ±5%										
Drive output	Applicable motor [kW]	0.4/0.7	0.7/1.1	1.1/1.5	1.5/2.2	2.2/3.0	3.0/3.7	3.7/5.5	5.5/7.5	7.5/11	11/15	15/18.5
	Output current [A]*2	1.5/2.1	2.1/3.1	3.1/3.8	3.8/5.1	5.1/7.2	7.2/9.0	9.0/13	13/17	17/25	25/32	32/37
	Default carrier frequency [kHz]	6	6	6	6	6	6	6	6	6	6	6
	Overload capacity	150% for G type and 110% for P type for 60 s										
	Max. output voltage	Three-phase 380 to 480 Vac (proportional to input voltage)										
	Max. output frequency	500 Hz										
Braking resistor	Recommended power [kW]	0.08	0.14	0.22	0.3	0.44	0.6	0.74	1.1	1.5	2.2	3
	Minimum resistance [Ω]	96	96	96	96	64	64	32	32	32	24	24
Braking unit		Built-in										
Enclosure		IP 20										

Voltage class		Three-phase 380 to 480 Vac										
MD290TxxxG/xxxP-INT		18.5G/22P	22G/30P	30G/37P	37G/45P	45G/55P	55G/75P	75G/90P	90G/110P	110G/132P	132G/160P	160G/200P
Frame size		T5		T6		T7		T8			T9	
Drive input	Rated input voltage	Three-phase 380 to 480 Vac -15% to +10%										
	Rated input current [A]	43.4/51.3	51.3/65.8	57/71	69/86	89/111	106/143	139/167	164/198	196/239	240/295	287/359
	Power capacity [kVA]	54	60	65	79	102	131	153	181	219	270	328
	Rated input frequency	50/60 Hz ±5%										
Drive output	Applicable motor [kW]	18.5/22	22/30	30/37	37/45	45/55	55/75	75/90	90/110	110/132	132/160	160/200
	Output current [A]*2	37/45	45/60	60/75	75/91	91/112	112/150	150/176	176/210	210/253	253/304	304/377
	Default carrier frequency [kHz]	6	6	6	5	5	4	3	3	3	3	3
	Overload capacity	150% for G type and 110% for P type for 60 s										
	Max. output voltage	Three-phase 380 to 480 Vac (proportional to input voltage)										
	Max. output frequency	500 Hz										
Braking resistor	Recommended power [kW]	4	4.5	6	7	9	11	15	18	22	26	32
	Minimum resistance [Ω]	24	24	19.2	14.8	12.8	9.6	6.8	11.4x2*3	7.7x2*3	7.7x2*3	7.7x2*3
Braking unit		Built-in as option (for models MD290TxxxG/yyyPB-INT)							MDBUN-60-5T x2	MDBUN-90-5T x2		
Enclosure		IP 20										

Voltage class		Three-phase 380 to 480 Vac														
MD290Txxxx-INT*4		200G	220P	220G	250P	280P	250G	280G	315P	355P	315G	355G	400P	400G	450P	450G	500P
Frame size		T10					T11				T12						
Drive input	Rated input voltage	Three-phase 380 to 480 Vac -15% to +10%															
	Rated input current [A]	365	410	410	456	507	441	495	559	624	565	617	708	687	782	782	840
	Power capacity [kVA]	334	375	375	417	464	404	453	511	571	517	565	647	629	715	716	768
	Rated input frequency	50/60 Hz ±5%															
Drive output	Applicable motor [kW]	200	220	220	250	280	250	280	315	355	315	355	400	400	450	450	500
	Output current [A]*2	377	426	426	465	520	465	520	585	650	585	650	725	725	820	820	880
	Default carrier frequency [kHz]	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Overload capacity	150% for G type and 110% for P type for 60 s (130% for MD290T450G (-L))															
	Max. output voltage	Three-phase 380 to 480 Vac (proportional to input voltage)															
	Max. output frequency	500 Hz															
Braking resistor	Recommended power [kW]	38	38	42	42	48	48	54	54	60	60	69	69	78	78	87	87
	Minimum resistance [Ω]	2.8 x2 *3	2.8 x2 *3	2.8 x2 *3	2.8 x2 *3	2.8 x2 *3	2.8 x2 *3	2.8 x3 *3	2.8 x3 *3	2.8 x3 *3	2.8 x3 *3	2.8 x3 *3	2.8 x3 *3	2.8 x3 *3	2.8 x3 *3	2.8 x3 *3	2.8 x3 *3
Braking unit		MDBUN-200-5T x2					MDBUN-200-5T x3										
Enclosure		IP 00															

Voltage class CE		Three-phase 200 to 240 Vac															
MD290-2TxxxG/yyyP(B)-INT		0.4G/ 0.7PB	0.7G/ 1.1PB	1.1G/ 1.5PB	1.5G/ 2.2PB	2.2G/ 3.7PB	3.7G/ 5.5PB	5.5G/ 7.5PB	7.5G/ 11PB	11G/ 15P	15G/ 18.5P	18.5G/ 22P	22G/ 30P	30G/ 37P	37G/ 45P	45G/ 55P	55G/ 75P
Frame size		T1*1				T2		T3	T4	T5	T6		T7		T8		
Drive input	Rated input voltage	Three-phase 200 to 240 Vac -15% to +10%															
	Rated input current [A]	2.4/ 3.7	4.6/ 6.4	6.3/ 9.1	9/ 11.3	11.4/ 15.9	16.7/ 22.4	32.2/ 39.7	41.3/ 44	51.3/ 65.8	57/ 71	69/ 86	89/ 111	106/ 143	139/ 167	164/ 198	196/ 239
	Rated input frequency	50/60 Hz ±5%															
Drive output	Applicable motor [kW]	0.4/0.75	0.75/1.1	1.1/1.5	1.5/2.2	2.2/3.7	3.7/5.5	5.5/7.5	7.5/11	11/15	15/18.5	18.5/22	22/30	30/37	37/45	45/55	55/75
	Output current [A]*2	2.1/3.1	3.8/5.1	5.1/7.2	7.2/9	9/13	13/17	25/32	32/37	45/60	60/75	75/91	91/112	112/150	150/176	176/210	210/253
	Default carrier frequency [kHz]	6	6	6	6	6	6	6	6	6	6	5	5	5	4	3	3
	Overload capacity	150% for G type & 110% for P type for 60 s															
	Max. output voltage	Three phase 200 to 240 Vac (proportional to input voltage)															
	Max. output frequency	500 Hz															
Braking resistor	Recommended power [kW]	90	160	250	340	500	800	1300	1700	2300	3000	3900	4600	5500	6800	5000x2	6000x2
	Minimum resistance [Ω]	48	48	32	32	16	16	12	12	12	9	7	6	5	4	5.5 x2 *3	3.7 x2 *3
Braking unit		Built-in								Built-in as option (for models MD290-2TxxxG/yyyPB-INT)						MDBUN-60-2T x2	MDBUN-90-2T x2
Enclosure		IP20															



PC software tools: InoDriveShop

InoDriveShop is a PC-based software offering. It is based on a familiar Windows interface. InoDriveShop can upload and download drive parameters, and features a variety of other functions, such as a real-time oscilloscope

3.2 MD310 Compact Vector, Economic AC Drives

Open loop, three phase, 400VAC, 0.4-18.5kW

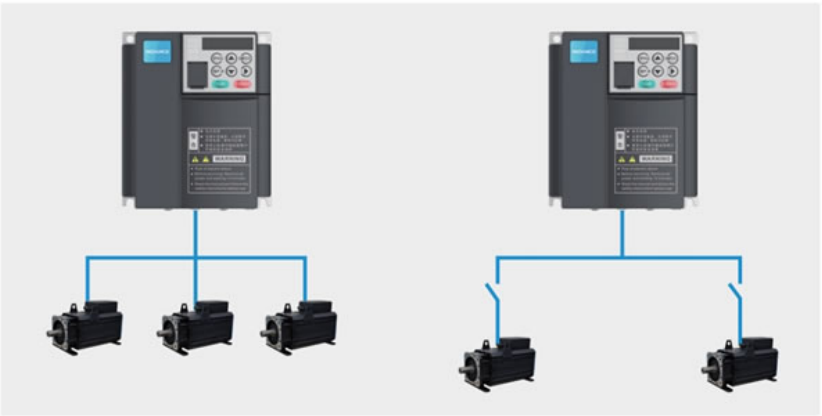
- Open loop V/f & sensorless vector control
- Starting torque: 150% at 0.25Hz for SVC
- Automatic torque boost
- Slip compensation
- Communications options: Modbus-RTU; CANlink
- Simplified parameter for easy start-up
- 4-independent S-ramps
- Flexible programmable I/O connection
- Variable DC-injection braking
- Comprehensive trip diagnostics
- Output frequency 500 Hz

- Built-in dynamic braking unit
- Complies with CE

Voltage class		Three-phase 380 Vac									
Drive model: MD310T**xxx**B-INT		0.4	0.7	1.5	2.2	3.7	5.5	7.5	11	15	18.5
Dimensions	Frame	Size 1				Size 2		Size 3		Size 4	
	Height Width Depth	[H]: 128 mm [W]: 108 mm [D]: 158 mm				[H1]: 209 mm [W]: 130 mm [D]: 164 mm		[H1]: 260 mm [W]: 140 mm [D]: 171 mm		[H1]: 298 mm [W]: 180 mm [D]: 176 mm	
Mass [kg]		1.1	1.1	1.3	1.3	2.3	2.3	3.4	3.4	5.6	5.6
Drive input	Rated input voltage	Three-phase 380 to 440 Vac, -15% to +10% (323 to 484 Vac)									
	Rated input current [A]	1.9	3.4	5	5.8	10.5	14.6	20.5	26	35	38.5
	Power capacity [kVA]	1	1.5	3	4	5.9	8.9	11	17	21	24
	Rated input frequency	50/60 Hz, ±5% (47.5 to 63 Hz)									
Drive output	Applicable motor [kW]	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5
	Output current [A]*1	1.5	2.1	3.8	5.1	9	13	17	25	32	37
	Overload capacity	150% for 60 s & 180% for 2 s									
	Max. output voltage	380 to 440 Vac (proportional to input voltage)									
	Max. output frequency	500 Hz									
Braking resistor	Recommended power [W]	150	150	150	250	300	400	500	800	1,000	1,300
	Minimum resistance [Ω]	⩾96.5	⩾96.5	⩾96.5	⩾64.3	⩾38.6	⩾27.6	⩾38.6	⩾38.6	⩾27.6	⩾27.6
Enclosure		IP 20									

*1 Rated output current using a carrier frequency of 6 kHz

Able to control multiple motors



Control multiple motors simultaneously in V/F mode

One drive can control 2 motors with different parameter sets at different times (SVC mode)

3.3 MD520 High Performance Universal AC Drives

- Unified AC asynchronous and PM synchronous motor control
- Wide operating voltage and product range: 3ph 380-480Vac: 0.4 to 500kW; 3ph 200-240Vac: 0.4 to 75kW; 1ph 200-240Vac: 0.4 to 2.2kW
- STO SIL 3 PL e
- Built-in DC reactor (400V: 18.5kW and above; 200V: 11kW and above)
- Enhanced reliability: conformal coated PCBs compliant to 3S2

and 3C3 environments
- Complies to efficiency level IE2 as defined in IEC 61800-9-2
- Through-hole mounting options (0.4 to 160kW)

MD520 - features & functions

- AC asynchronous, PM synchronous and synchronous reluctance motors control:
  - Open loop V/F (induction motors only) and SVC
  - Closed loop FVC
- Dual rated: heavy duty (overload: 150%/ 1 min) and normal duty (overload: 110%/ 1 min)
- Starting torque
  - 150% at 0.25 Hz for SVC
  - 180% at 0 Hz for FVC
- Communication options:
  - Modbus-RTU
  - Modbus-TCP
  - PROFIBUS-DP
  - CANopen
  - CANlink
  - PROFINET
  - EtherCAT
  - Ethernet/IP
- Category C2 compliance with external RFI filter. Ratings with built-in filter comply with Category C3*1
- Built-in dynamic braking unit, up to/including 75 kW (400 V) or 37 kW (200 V)
- Operation in ambient temperature of up to 50°C (with de-rating above 40°C)*2
- Bipolar analog input as standard (-10 to +10 V)
- PTC input as standard
- Simplified parameters for easy start up
- 4 independent S-ramps
- Flexible programmable I/Os
- User programmable logic
- Variable DC-injection braking
- Comprehensive trip diagnostics
- Output frequency: 599 Hz
- Application dedicated functions:
  - Master-slave function (torque, speed)
  - Textile wobble control
- Brake control logic
- 4 motor parameter sets
- Automatic torque boost
- PC-based software: simplified start up & backup*3

*1 For detailed EMC compliance information, consult your local Inovance representative

*2 For operation in higher ambient temperatures, consult your local Inovance representative

*3 USB to RS485 adapter required. MDKE-10 or SOP-20 keypads can be used for this purpose

NEW: built-in colour LED keypad

- The clearest possible information display
- Displays multiple pieces of information simultaneously (e.g. drive status and operating information)
- User friendly with additional keys

MD520 - 4T 220 B S -L -INT

① ② ③ ④ ⑤ ⑥ ⑦

① **Drive series:**
MD520 series

② **Voltage level:**
4T: three phase 380 V - 480 V
2T: three phase 200 V - 240 V
2S: single phase 200 V - 240 V

③ **Power rating for heavy duty (kW):**
0.4: 0.4
400: 400

④ **Braking unit:**
None: without braking unit
B: with braking unit

⑤ **STO:**
None: STO not supported
S: STO supported

⑥ **Reactor:**
None: without reactor
-T: with DC reactor; applicable to T5 models
-L: with AC output reactor; applicable to T10 to T12 models

⑦ **Version:**
INT: International variant

Voltage class		**1 Phase 200 - 240Vac**			
Drive model: MD520-2SxxxB(S)-INT		0.4	0.7	1.5	2.2
Frame size		**T2**			
Drive Input	Rated input voltage	**1 Phase 200 to 240Vac, -15% to +10%**			
	Rated input current **(A)**	5.4	8.2	14	20
	Power capacity **(kVA)**	1.4	2.2	3.7	6
	Rated input frequency	**50/60 Hz, ±5%**			
Drive Output	Applicable motor **(kW)**	0.4	0.7	1.5	2.2
	Output current **(A)**[*2]	2.3	4.0	7.0	9.6
	Default carrier frequency **(kHz)**	6	6	6	6
	Overload capacity	**150% for 60 s**			
	Max. output voltage	**Three Phase 200Vac to 240Vac (Proportional to input voltage)**			
	Max. output frequency	**599 Hz**			
Braking Resistor	Recommended power **(W)**	80	80	100	100
	Minimum resistance **(Ω)**	64	64	32	32
Braking unit		**Built-in**			
Enclosure		**IP 20**			

duty ratings , 150% overload

Voltage class	Three Phase 380 - 480Vac																												
Drive model: 520-4Txxx(B)(S)(-T)(-L)-INT[*3]	0.4B(S)	0.7B(S)	1.1B(S)	1.5B(S)	2.2B(S)	3.0B(S)	3.7B(S)	5.5B(S)	7.5B(S)	11B(S)	15B(S)	18.5(B)(S)(-T)	22(B)(S)(-T)	30(B)(S)	37(B)(S)	45(B)(S)	55(B)(S)	75(B)(S)	90(S)	110(S)	132(S)	160(S)	200(S)(-L)	220(S)(-L)	250(S)(-L)	280(S)(-L)	315(S)(-L)	355(S)(-L)	400(S)(-L)
Frame size	T1[*1]						T2		T3		T4	T5		T6		T7			T8			T9	T10		T11			T12	
Rated input voltage	Three Phase 380 to 480Vac, -15% to +10%																												
Rated input current (A)	1.8	2.4	3.7	4.6	6.3	9.0	11.4	16.7	21.9	32.2	41.3	43.4	51.3	57	69	89	106	139	164	196	240	287	365	410	441	495	565	617	687
Power capacity (kVA)	2	2.8	4.1	5.0	6.7	9.5	12	17.5	22.8	33.4	42.8	45	54	52	63	81	97	127	150	179	220	263	334	375	404	453	517	565	629
Rated input frequency	50/60 Hz, ±5%																												
Applicable motor (kW)	0.4	0.7	1.1	1.5	2.2	3.0	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	220	250	280	315	355	400
Output current (A)[*2]	1.5	2.1	3.1	3.8	5.1	7.2	9.0	13.0	17.0	25.0	32.0	37	45	60	75	91	112	150	176	210	253	304	377	426	465	520	585	650	725
Default carrier frequency (kHz)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	3	3	3	3	3	3	3	3	3	3
Overload capacity	150% for 60 s																												
Max. output voltage	Three Phase 380Vac to 480Vac (Proportional to input voltage)																												
Max. output frequency	599 Hz																												
Recommended power (W)	0.08	0.14	0.22	0.3	0.44	0.6	0.74	1.1	1.5	2.2	3	4	4.5	6	7	9	11	15	18	22	26	32	38	42	48	54	60	69	78
Minimum resistance (Ω)	96	96	96	96	64	64	32	32	32	24	24	24	24	19.2	14.8	12.8	9.6	6.8	11.4 x2[*4]	7.7 x2[*4]	7.7 x2[*4]	7.7 x2[*4]	2.8 x2[*4]	2.8 x2[*4]	2.8 x3[*4]	2.8 x3[*4]	2.8 x3[*4]	2.8 x3[*4]	2.8 x3[*4]
Braking unit	Built-in																		MDBUN-60-5T x2	MDBUN-90-5T x2			MDBUN-200-5T x2		MDBUN-200-5T x3				
Enclosure	IP20																						IP00						

duty ratings, 110% overload

Voltage class	Three Phase 380 - 480Vac																												
Drive model: 520-4Txxx(B)(S)(-T)(-L)-INT[*3]	0.4B(S)	0.7B(S)	1.1B(S)	1.5B(S)	2.2B(S)	3.0B(S)	3.7B(S)	5.5B(S)	7.5B(S)	11B(S)	15B(S)	18.5(B)(S)(-T)	22(B)(S)(-T)	30(B)(S)	37(B)(S)	45(B)(S)	55(B)(S)	75(B)(S)	90(S)	110(S)	132(S)	160(S)	200(S)(-L)	220(S)(-L)	250(S)(-L)	280(S)(-L)	315(S)(-L)	355(S)(-L)	400(S)(-L)
Frame size	T1[*1]						T2		T3		T4	T5		T6		T7			T8			T9	T10		T11			T12	
Rated input voltage	Three Phase 380 to 480Vac, -15% to +10%																												
Rated input current (A)	2.5	3.7	4.6	6.4	9.1	11.3	15.9	22.4	32.9	39.7	44.0	51.3	65.8	71	86	111	143	167	198	239	295	359	456	507	559	624	708	782	840
Power capacity (kVA)	2.3	3.4	4.2	5.9	8.3	10.4	15.5	20.5	30.2	38.2	44.4	54	60	65	79	102	131	153	181	219	270	328	417	464	511	571	647	715	768
Rated input frequency	50/60 Hz, ±5%																												
Applicable motor (kW)	0.75	1.1	1.5	2.2	3.7	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	250	280	315	355	400	450	500
Output current (A)[*2]	2.1	3.1	3.8	5.1	7.2	9.0	13.0	17.0	25.0	32.0	37.0	45	60	75	91	112	150	176	210	253	304	377	465	520	585	650	725	820	880
Default carrier frequency (kHz)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	3	3	3	3	3	3	3	3	3	3
Overload capacity	110% for 60 s																												
Max. output voltage	Three Phase 380Vac to 480Vac (Proportional to input voltage)																												
Max. output frequency	599 Hz																												
Recommended power (W)	0.08	0.14	0.22	0.3	0.44	0.6	0.74	1.1	1.5	2.2	3	4	4.5	6	7	9	11	15	18	22	26	32	38	42	48	54	60	69	78
Minimum resistance (Ω)	96	96	96	96	64	64	32	32	32	24	24	24	24	19.2	14.8	12.8	9.6	6.8	11.4 x2[*4]	7.7 x2[*4]	7.7 x2[*4]	2.8 x2[*4]	2.8 x2[*4]	2.8 x2[*4]	2.8 x3[*4]	2.8 x3[*4]	2.8 x3[*4]	2.8 x3[*4]	2.8 x3[*4]
Braking unit	Built-in																		MDBUN-60-5T x2	MDBUN-90-5T x2		MDBUN-200-5T x2	MDBUN-200-5T x2		MDBUN-200-5T x3				
Enclosure	IP20																						IP00						

uty ratings , 150% overload

Voltage class	Three Phase 200 - 240Vac																				
Drive model: MD520-2Txxx(B)(S)-INT	0.4B(S)	0.7B(S)	1.1B(S)	1.5B(S)	2.2B(S)	3.7B(S)	5.5B(S)	7.5B(S)	11(B)(S)	15(B)(S)	18.5(B)(S)	22(B)(S)	30(B)(S)	37(B)(S)	45(S)	55(S)	75(S)	90(S)	110(S)	132(S)	160(S)	200(S)
Frame size	T1[*1]				T2		T3	T4	T5	T6		T7		T8			T9	T10		T11	T12	
Rated input voltage	Three Phase 200 to 240Vac, -15% to +10%																				
Rated input current (A)	2.4	4.6	6.3	9.0	11.4	16.7	32.2	41.3	51.3	57	69/86	89	106	139	164	196	287	365	410	441	565	687
Power capacity (kVA)	1.1	2.1	2.9	4.1	5.2	7.6	14.7	18.9	27	26.1	31.6	40.7	48.5	63.6	75	89.6	1.1	2.1	2.9	4.1	5.2	7.6
Rated input frequency	50/60 Hz, ±5%																				
Applicable motor (kW)	0.4	0.75	1.1	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200
Output current (A)[*2]	2.1	3.8	5.1	7.2	9.0	13	25	32	45	60	75	91	112	150	176	210	304	377	426	465	585	725
Default carrier frequency (kHz)	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	3	3	3	3	3	3	3
Overload capacity	150% for 60 s																				
Max. output voltage	Three Phase 200Vac to 240Vac (Proportional to input voltage)																				
Max. output frequency	599 Hz																				
Recommended power (W)	0.09	0.16	0.25	0.34	0.5	0.8	1.3	1.7	2.3	3.0	3.9	4.6	5.5	6.8	5.0 x2	6.0 x2	7.5 x2	6 x3	7.5 x3	7.0 x4	6.5 x5	7.0 x6
Minimum resistance (Ω)	48	48	0.26	32	16	16	12	12	12	9	7	6	5	4	5.5 x2[*3]	3.7 x2[*3]	3.7 x2[*3]	3.7 x3[*3]	3.7 x3[*3]	3.7 x4[*3]	3.7 x5[*3]	3.7 x6[*3]
Braking unit	Built-in														MDBUN-60-2T x2	MDBUN-90-2T x2	MDBUN-90-2T x2	MDBUN-90-2T x3	MDBUN-90-2T x3	MDBUN-90-2T x4	MDBUN-90-2T x5	MDBUN-90-2T x6
Enclosure	IP20														IP00							

duty ratings, 110% overload

Voltage class	Three Phase 200 - 240Vac																				
Drive model: MD520-2Txxx(B)(S)-INT	0.4B(S)	0.7B(S)	1.1B(S)	1.5B(S)	2.2B(S)	3.7B(S)	5.5B(S)	7.5B(S)	11(B)(S)	15(B)(S)	18.5(B)(S)	22(B)(S)	30(B)(S)	37(B)(S)	45(S)	55(S)	75(S)	90(S)	110(S)	132(S)	160(S)	200(S)
Frame size	T1[*1]				T2		T3	T4	T5	T6		T7		T8			T9	T10		T11	T12	
Rated input voltage	Three Phase 200 to 240Vac, -15% to +10%																				
Rated input current (A)	3.7	6.4	9.1	11.3	15.9	22.4	39.7	44	65.8	71	86	111	143	167	198	239	359	456	507	559	708	840
Power capacity (kVA)	1.7	2.9	4.2	5.2	7.3	10.2	18.2	20.1	30.1	32.5	39.3	50.8	65.4	76.4	90.5	109.3	1.7	2.9	4.2	5.2	7.3	10.2
Rated input frequency	50/60 Hz, ±5%																				
Applicable motor (kW)	0.75	1.1	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	220
Output current (A)[*2]	3.1	5.1	7.2	9.0	13	17	32	37	60	75	91	112	150	176	210	253	377	465	520	585	725	880
Default carrier frequency (kHz)	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	3	3	3	3	3	3	3
Overload capacity	110% for 60 s																				
Max. output voltage	Three Phase 200Vac to 240Vac (Proportional to input voltage)																				
Max. output frequency	599 Hz																				
Recommended power (W)	0.09	0.16	0.25	0.34	0.5	0.8	1.3	1.7	2.3	3.0	3.9	4.6	5.5	6.8	5.0 x2	6.0 x2	6 x3	7.5 x3	7.0 x4	6.5 x5	7.0 x6	7.0 x7
Minimum resistance (Ω)	48	48	32	32	16	16	12	12	12	9	7	6	5	4	5.5 x2[*3]	3.7 x2[*3]	3.7 x3[*3]	3.7 x3[*3]	3.7 x4[*3]	3.7 x5[*3]	3.7 x6[*3]	3.7 x7[*3]
Braking unit	Built-in														MDBUN-60-2T x2	MDBUN-90-2T x2	MDBUN-90-2T x3	MDBUN-90-2T x3	MDBUN-90-2T x4	MDBUN-90-2T x5	MDBUN-90-2T x6	MDBUN-90-2T x7
Enclosure	IP20														IP00							

PC software tools: InoDriverShop

InoDriverShop is a free of charge PC-based software offering. It is based on a familiar Windows interface. InoDriverShop can upload and download drive parameters, and features a variety of other functions, such as a real-time oscilloscope. For the connection with the PC a standard USB to RS485 adapter can be used. MDKE-10 or SOP-20 keypads can also be used for this purpose.

4. Easy Series PLC

A complete product range – from the simplest to the most complex motion control capable PLC. Our PLCs are reliable and durable. They are available in small and medium sizes, support bus applications, and can be flexibly combined. Meanwhile, our HMIs offer clear displays and an easy-to-use format. They can be integrated with any third party equipment, but, for optimal performance, are designed to be used as a package with other products, such as PLCs and variable speed drives.

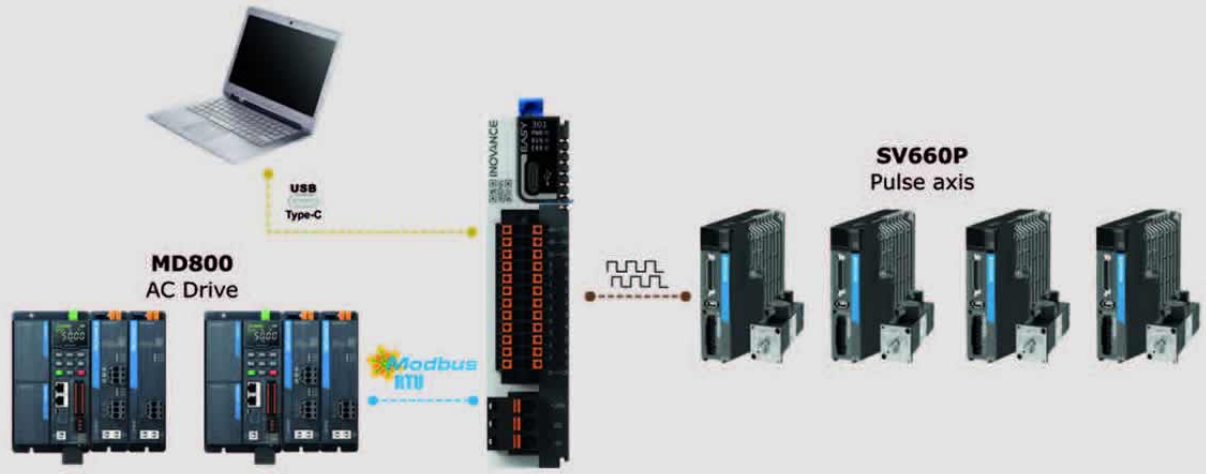
- PLCopen compliant axis control
- Simulation mode for offline debugging
- Real-time fieldbus
- Axis group for lineal and circular interpolation, CAM table functionality
- Supports function block and function for encapsulation, code reusability, and scalability
- ST, LD, SFC language support
- Multiple communication protocols: Modbus RTU/TCP; CANopen (optional); Ethernet/IP (scanner)

There are series Easy301, 302, 520, 502 & 523.
Easy301: Ultra compact CPU, RS232 + RS485
Easy302: General CPU, RS232 + RS485\
Easy320: CPU with Ethernet, Dual Ethernet + RS485
Easy502: Motion control CPU, EtherCAT + RS485
Easy523: Motion control CPU with Ethernet, Dual Ethernet+ EtherCAT + RS485

- EASY programming: Customized FB/FC self defined variable programming assistant.
- EASY assembly & wiring: Easy to add and/or replace modules. Plug in wires directly with spring clamp terminals.
- EASY commissioning: Auto device scanning, easy configuration, servo debug without programming, offline simulation.
- The type-C port works as a programming port allowing support programs, uploading/downloading and debugging.
- Easy wiring with spring clamp terminals.
- Slim and compact I/O expansion
- modules (GL20). Easy to plug in and remove for fast replacement.
- Scalable system architecture & multiple configurations.

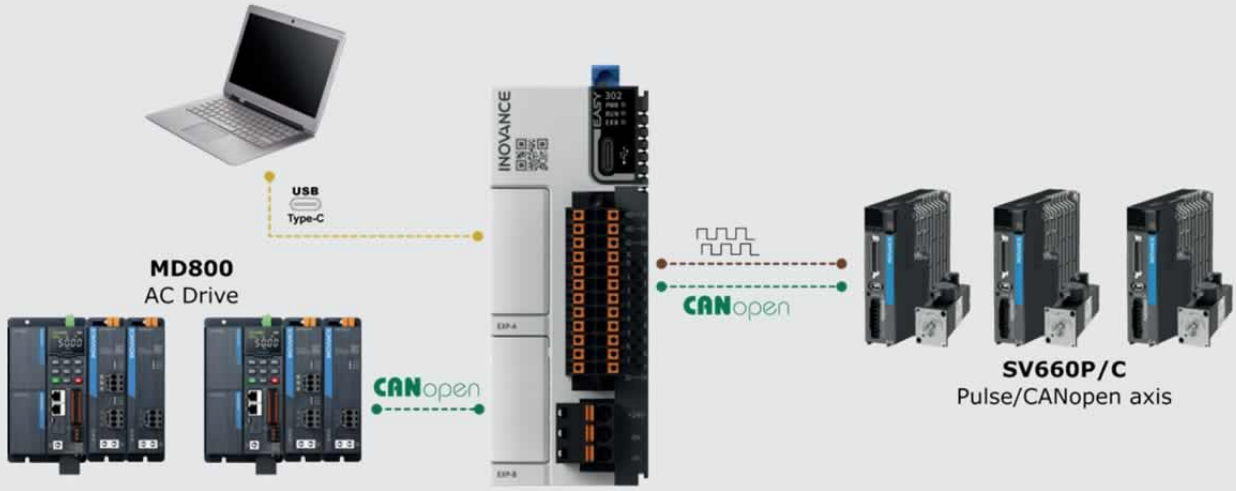
Easy301

Cost effective architecture using Modbus RTU communication and/or pulses to control the drives.



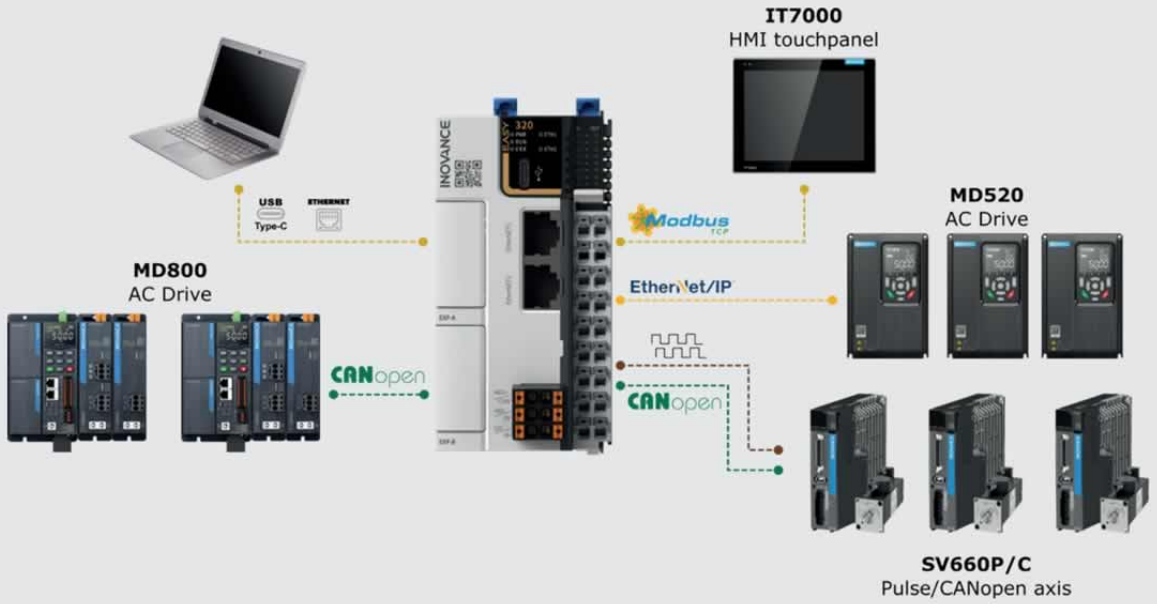
Easy302

Flexible architecture using CANopen communication and/or pulses to control the drives.



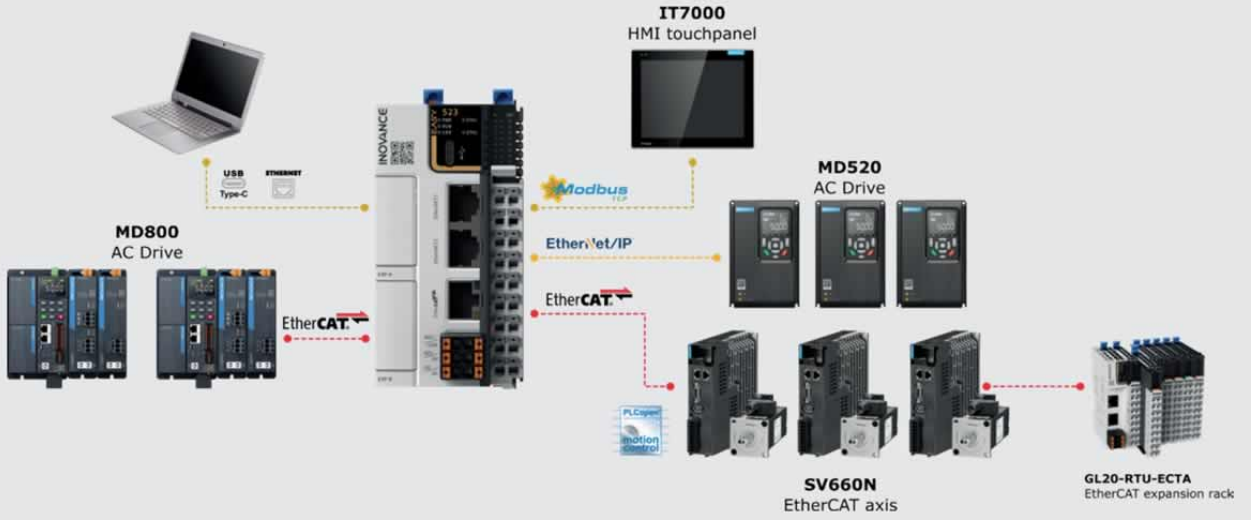
Easy320

Multiprotocol architecture using Ethernet/IP, CANopen communication and/or pulses to control the drives, and Modbus TCP with the HMI touchpanel



Easy523

Powerful motion control architecture using realtime EtherCAT communication and Ethernet/IP to control the drives, and Modbus TCP with the HMI touchpanel



Item	Easy300		
	Easy301-0808TN	Easy302-0808TN	Easy320-0808TN
Part number	01440323	01440324	01440325
Motion axis	4 pulse control axes	5 pulse control axes	5 pulse control axes
Expansion modules (GL20)	8	16	
Expansion slots (GE20)	–	2 (support communication/digital IO/analog IO/TF card/R	
Ethernet	–		2 Modbus TCP up to 32 slav Ethernet/IP scanner/adap
EtherCAT	–		
Serial communication	1 x RS232 1 x RS485 Support free protocol, Modbus RTU/ASC up to 16 slaves	1 x RS232, 1 x RS485 Support 1 x RS232/485 expansion and 1 x CAN expansion Support free protocol, Modbus RTU/ASC 16 slaves (recommended)	1 x RS485 Support 2 x RS232 /485 expansion and 1 x CAN expansion Support free protocol, Modbus RTU/ASC 16 slaves (recommended)
CAN communication	–	1 (requires expansion card), supports CANlink/CANopen n	
Program storage	128 K step		
Data storage	1 Mbyte (128 KB non-volatile)		
	150 KB soft element, non-volatile after No.1000		
Instruction execution time	20 K step / 2 ms		
Dimensions (WxHxD: mm)	24x100x83	40x100x83	53x100x80
Other interfaces	Type C	Type C, TF card (requires TF card expansion module)	
CAM and interpolation	–	Supports CAM and interpolation motion	
Encoder axis	4 channel encoder axis (8 x high speed inputs, up to 200 KHz)		
Built in I/Os	8 inputs (selectable sink/source) and 8 outputs (sink type - available, source type - con		
Programming languages	LD, SFC, ST, FB/FC (supports encryption functionality)		
Power supply	DC24V		

[1]Synchronised axes

[2]EtherCAT slaves include I/Os and synchronised and non-synchronised axes

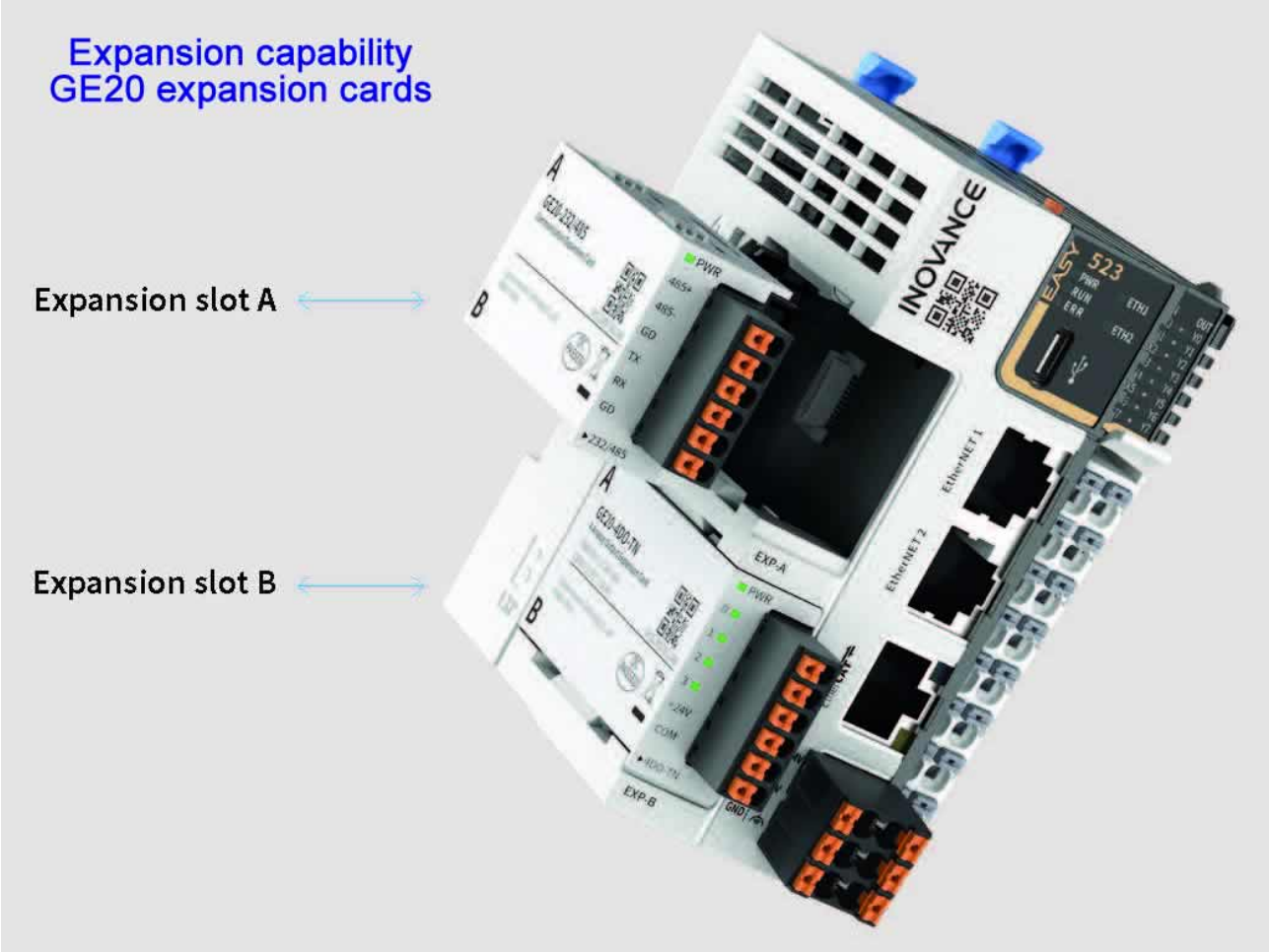
Easy500	
Easy502-0808TN	Easy523-0808TN
01440336	01440326
A total of 16 synchronised axes are possible. This can be a max. of 16 EtherCAT axes[1], or a combination that includes a max. of five pulse control axes	A total of 32 synchronised axes are possible. This can be a max. of 32 EtherCAT axes[1], or a combination that includes a max. of five pulse control axes
–	2
	Modbus TCP up to 32 slaves
	Ethernet/IP scanner/adapter
Support up to 72 EtherCAT slaves[2] (including synchronised axes)	
1 x RS485 Support 2 x RS232/485 expansion and 1 x CAN expansion Support free protocol, Modbus RTU/ASC 16 slaves (recommended)	1 x RS485 Support 2 x RS232/485 expansion Support free protocol, Modbus RTU/ASC 16 slaves (recommended)
er/slave (up to 62 slaves)	
200 k step	
2 Mbyte (128 KB non-volatile)	
	20 K step / 1.6 ms

Sintec Optronics

Autoshop

A powerful PC tool is provided as standard


ST programming
Axis commissioning tool
Trace



Communications capabilities:

- RS485 connection - up to 31 slaves
- CANopen - up to 62 slaves
- CANlink - up to 62 slaves
- Modbus TCP - up to 32 slaves (working as client/master)
- Modbus TCP - up to 16 masters (working as server/slave)
- Up to 3 serial ports (RS232/485) - 1 onboard and 2 GE20 expansion cards

Product appearance	Expansion card	Product code	Description	Slot A	Slot B
	GE20-4DO-TN	01480033	4 channel sink outputs	✓	✓
	GE20-4DI	01480032	4 channel source/sink inputs	✓	✓
	GE20-2AD1DA-I	01480027	2 analog inputs and 1 analog current output	✓	✓
	GE20-2AD1DA-V	01480028	2 analog inputs and 1 analog voltage output	✓	✓
	GE20-232/485-RTC	01480035	RS232/485 expansion card with RTC		✓
	GE20-232/485	01480029	RS232/485 expansion card	✓	✓
	GE20-CAN-485	01480034	CAN/RS485 expansion card with RJ45 interface	✓	
	GE20-RTC	01480031	RTC expansion card		✓
	GE20-TF	01480030	TF expansion card		✓

5. AC703 IPC Motion Controller

High Performance Intelligent Controller for demanding industrial applications

- CPU: Intel Celeron J1900 2.0GHzz

- 32 axes at 1 ms EtherCAT period: Maximum 32 axes, 128 slave stations; EtherCAT I/O expansion support. Up to 128 EtherCAT remote I/O modules
- Multi-layer networking due to support for multiple communication protocols including: EtherCAT, Modbus TCP/RTU, Ethernet IP, OPC UA
- Compatible with legacy equipment through built-in Modbus RTU master/slave protocol and 2 separate communication interfaces: RS485 and RS232
- IEC 61131-3 programming languages: ST, LD, SFC, CFC
- System software contains: PLCopen, CAM, CNC, and ROBOT motion control components
- Remote commissioning and industrial IoT capabilities
- Embedded Webvisu server
- EoE support with SV660N drives

AC703 features & functions

Comprehensive functionality

- Remote commissioning and industrial IoT capabilities
- Embedded Webvisu server
- EoE support with Inovance drives

Advanced programming capabilities

- IEC 61131-3 programming languages:
  - ST, LD, SFC, CFC
- System software contains:
  - PLCopen, CAM, CNC, and ROBOT motion control components

Cutting-edge hardware

- CPU: Celeron series
- Safe shut-down (registers are saved in non-volatile memory)

High performance

- 32 axes at 1 ms EtherCAT period
- Maximum 32 axes, 128 slave stations
- EtherCAT I/O expansion support:
  - Up to 128 EtherCAT remote I/O modules[*1]
  - GR10, GL10 & GL20 I/O expansion modules can be supported

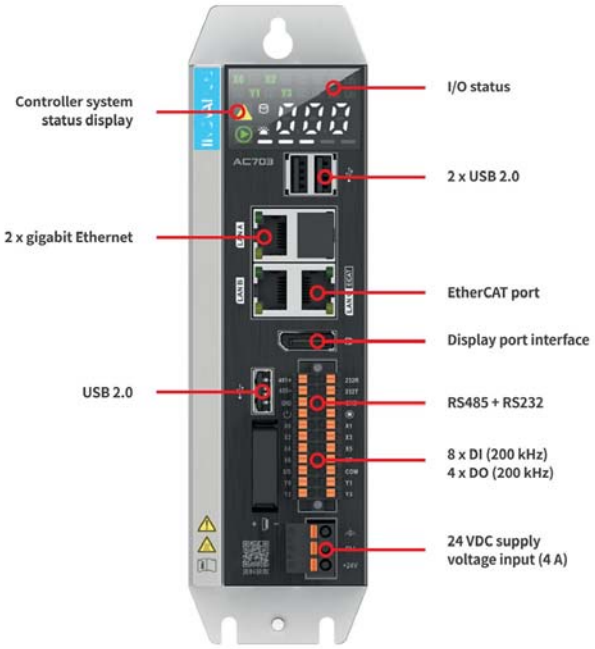
Flexible communications

- Multi-layer networking due to support for multiple communication protocols including:

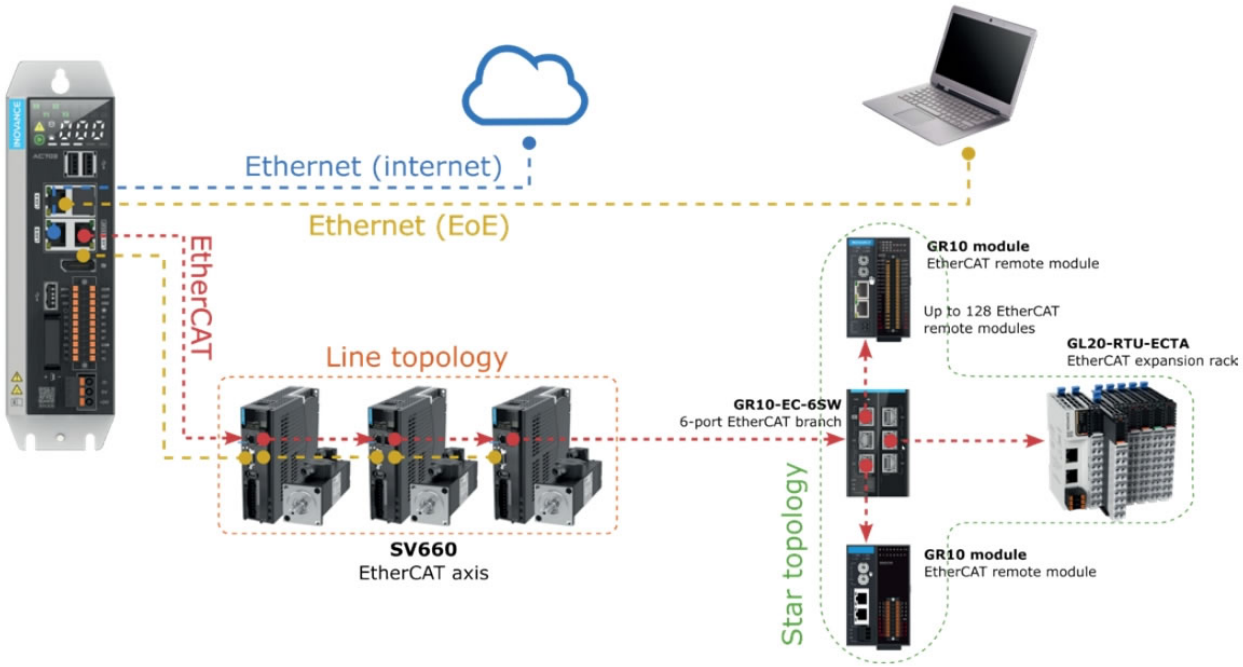
EtherNet/IP OPC UA Modbus TCP

- Compatible with legacy equipment through built-in Modbus RTU master/slave protocol and 2 separate communication interfaces: RS485 and RS232

[*1] Please note: 128 is the total number of EtherCAT slaves
[*2] GL10-RTU-ECAT EtherCAT bus coupler required for GL10 modules.
GL20-RTU-ECAT EtherCAT bus coupler required for GL20 modules



Example EtherCAT system architecture



Hardware	
Processor	Intel J1900, 2.0 GHz
Memory	4G DDR3, 64G mSATA SSD, 64M SPI Flash
Status display	DI/DO status, fault code, SSD drive activity, running status, CPU usage
Ethernet ports	1x EtherCAT, 2x Ethernet
Serial communication	1x RS485, 1x RS232
DI/DO	8x High Speed inputs (200 kHz), 4x High Speed outputs (200 kHz)
Display port	DP
Power input	24VDC (-15%~20%)
UPS backup power	Built-in Safe Shut-Down (registers are saved in non-volatile memory)
Cooling fan	Fanless natural cooling
EMC test standards	EN/IEC 61000-6-2:2019, EN/IEC 61000-6-4:2019, EN 61131-2:2007, EN 55011:2016/A11:2020
Working / storage temperature	-5°C~55°C/-25°C~70°C
Dimensions (H x W x D)	160 x 55 x 147 (mm)
Mass	1.3 kg

Software	
OS	Linux/RT
System software	Full support for PLCopen
	Inovance InoProShop based on CODESYS®
	PLCopen/SoftMotion with CODESYS Runtime, supporting all motion control functions such as PLCopen/CAM/CNC/ROBOT
Bus	EtherCAT master
Control axis capability of EtherCAT master	32 axes at 1 ms period
	Max. 32 axes, supports 128 stations
Display port (DP)	Reserved
Ethernet protocols	Ethernet/IP (scanner and adapter), OPC UA (server), Modbus TCP (master/slave)